

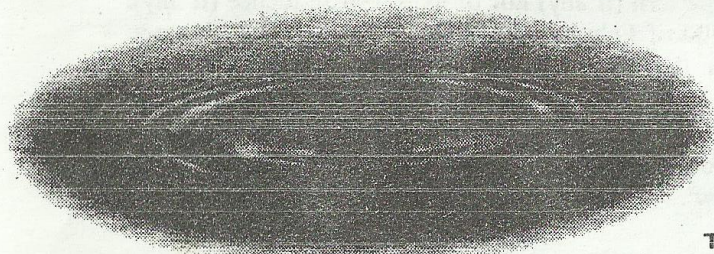
# E.N.I.G.M.A.

EUROPEAN NUMBERS INFORMATION GATHERING &  
MONITORING ASSOCIATION

Published Jan 1999 ISSUE 16

IN THIS ISSUE OF ENIGMA  
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E15 - 'NANCY ADAM SUSAN' LOCATED  
G7 - SPECIAL FEATURE

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## STATION NEWS

First of all, we must again apologise for the "split" grouping presentation. This is still due to computer incompatibilities, and we hope it will be sorted out in time for the next issue. Also, due to work for the Booklet (part 2) certain of the usual details have been omitted from this column. These are mainly concerned with schedule numbers. Rather than list all new/revived SNs, we will be covering these matters in the booklet. Anyone wanting further information on schedules for any particular station can request this, and we'll do our best to supply it. We have collated a vast amount of information from loggings, making habits of particular schedules easier to follow. This is an enormous task, and it would help, when large numbers of logs are sent together, if these could be listed in date/time order according to family (or station) - preferably each having its own separate page/s. Extricating what we need would then be so much easier & quicker.

### FAMILY I (a & b)

The above comment on SNs particularly applies to this family. We are now in a position to publish details of much of Ib's cyclic (few months on/few months off) and continuous schedules. As there is a great deal of information, it is best put in tabular form accompanied by an article, so we hope to include this in the next issue. We've started in this issue with an article on G7. The 8 voice stations E/G/S/V 6/7 are all operating as normal, but due to lack of space we can't include details here.

#### Ia

Both sub-families are as active as always, and behaving in their usual fashion, however, a few departures from the norm are being noted. Regular M14A (dual message variants) are now being sent continually on three 1900 schedules: MON: 263 (4485 in JAN), WED: 362 (4970 in JAN) and FRI: 560 (4614 in JAN) Previously, this variant has been rare. The split into 7i/72 groups has been noted again. Another oddity is that in one week 263 & 560 used the same GCs of 96/46 but different DKs. Could this mean that each received the same message, but decrypted from different OTPs? Why the need to send these dual messages anyway?

Although a little uncertainty exists concerning whether E17 is part of this family. Its format is the same, and so are the habits of its "normal" schedules, mainly heard in USA/Caribbean area. Schedule 274, however, strong in European daytime, presents problems. Last heard a few years ago, (where it took up residence around 9270) it recently returned for a run of transmissions earlier in January. Sending both at 1100 & 1500 (both erratic) on 10240v (almost daily) the typical "274" errors & problems were noted. Breaks during message, return of call (274), return of message a few groups back etc., eventually ending after further hiccups. Not all transmissions were plagued with hitches but enough to doubt its Family I links. No other family member runs daily schedules either (apart from S25 a while back - still around as usual: MON only). E17's voice is often described as male, female or "hermaphrodite"; it isn't easy to tell, but is 99% female! GCs recently around 50.

#### Ib



M12 has recently sent some long messages, 387 groups on one occasion. Usual GCs are around 135-148 - to fit into the standard repeat sequence. Special schedules 658 & 749 continue as ever.

A recent S7 variant (S7C) has appeared using four-figure nonrandom message groups. (Many thanks for the details & recording, Darren) The single transmission, so far unique, took place on WED 6th January, in progress at 1432, on 8144kHz. Groups are unpaired as always and ending is standard 1b type. Unfortunately, the call and preamble were missed, so we've no idea whether they too differed from the usual. However, the final groups were:

5692 - 2391 3671 4521 5431 -- 1485 - 1424 2574 3914 5634 - 1872 3452 4512 5692 -  
2391 3671 4521 5431 000 000

The hyphens have been added by us to show the non-random elements more clearly. It would seem that a cyclic 13-group "message" was being sent, commencing with the single 1485 group, and followed by three sets of four groups, each set having its own distinctive 4th digit number, i.e. 4,2 & 1. The first figures of each group also are seemingly non-random, as they read: 1/2/3/5, 1/3/4/5 and 2/3/4/5. all this puts it into the "Control-type" category, rather than "Text-type". Very odd!

We know nothing of its scheduling pattern (if any) nor of its repeat sequence (if any), but I'll be listening on the first WED of February. If anyone comes across this one again when in progress, remember that it may be a first or second sending of a standard 1b repeat sequence. Assuming this S7A was conforming to family rules, it's likely that the call commenced at 1420 and was a second sending of the original at 1400 (probably in the 9MHz "window"). If so, its last sending would have started at 1440, probably in the 7MHz "window".

1c - Miscellaneous CIS stations, not necessarily related.  
See "Things that go Buzz" column.

FAMILY II - this section follows later.

### FAMILY III

What we call IDs, as far as this family is concerned, are actually flexible schedule numbers in that from one year to another they do not necessarily use precisely the same start times - they may be up to an hour offset. Frequencies are not tied to SNs but usually change according to season (carrying the same SNs). No change in activity with the usual flurries of messages every few weeks. This is when several schedules all send messages (always with GCs in the 50s) at around the same time, then subside into the more common null message routine. This applies to the bulk of M3 schedules. Some, however, such as 503 and the anomalous 287 never send messages. 287 runs a "floating" daily schedule and can be heard at any time or freq., times sometimes being non-standard i.e. neither on hour nor h+30. Due to this habit it may always be present, but more likely operates varying-length active periods, each using a different time/freqs. pattern. 287 is running its longest schedule so far and can still be heard daily at 1630 - at present on 4180. Unlike most schedules, 503 never seems to change its freq. but remains on 10720.... Another oddity is the non-standard start time of 0815 for 211. Newly found schedules 182, 183 & 186 have



been identified as part of a new cluster - 187 being another member, yet has been dormant for many years. The anomalous 121..... A further oddity with this family is the dual nature of 016 - the only schedule to transmit twice on the same day and send different messages each time - noted many times now. The use of separate schedule numbers would seem logical.

As always, voice activity is very sparse - the only schedule at present active seems to be the long-running Slavic S12, 971, which can be heard monthly at 2100 on 1st & 3rd WED (4015 at present, but will be going higher). Messages are rare.

FAMILY VI - this section follows later.

FAMILY VII

No changes noted for M17. Occasional longer than usual (GC<30) messages still being sent.

A new E1 schedule has been noted THU at 0300/20/40 (last on 4740) - probably only new to ENIGMA.

FAMILY IXa

Possibly less M7 activity, but M10 is probably more active, certainly if we count the new variant M10E, and its voice counterpart S10E. These two are probably being operated by a different agency - Czech intelligence, while the rest originate in Slovakia, or perhaps less likely, the reverse. M10E/S10E operate for a few consecutive days at a time, and their activity is related. M10E transmissions at 1000 on 5020 are always followed by S10E (male voice) at 1300 on 10642 on the same day. Always four short messages on each mode, using random 5fig ANs (message content is different). During summer 1998 M10E was using 3824 at 2000. Transmissions occur every four weeks for up to six days running, e.g. THU 17.12 - MON 21.12, THU 14.1 - TUE 19.1. None are repeats.

M10's recent schedules include: 236/426, 249/071, 249/487, 403 (special), 434, 491/086, 619/071, 661, 661/423, 783/961, 667/988, 968/417, 968/652, 966 An interesting change took place on the regular 4-addressee schedule which for years used ANs: 571/275/049/435. As from 23rd Jan 275 was replaced by 532 and an unusually long 81 group message. Why just one of these four should need to change cannot be explained. A special "333" type was logged at 0410 on 21st Dec using the hitherto unknown AN of 403.

The regular S10D (female voice) schedule reported last time seems to have ended for the present, and no others have been found. No doubt it will pop up again one day! There have been some changes to M10's busy schedules - retiming of existing schedules, and new schedules using new addressee numbers. Write if you want details.

FAMILY IXc

The big news concerns S17, the daily "control" transmission. Since 1st January its schedule has radically changed (after a very long sojourn on 4485//5027 @ 1355). It now appears (still daily) at 1250 on 8190//9386, (8190 being a well established M7/M10 freq. and 9386 a freq. which has occasionally been used by M7 in the past). Although it has done this before, frequency changes have never been as dramatic, nor



has the start time ever departed from 1355. Addressee number, 313, DK 42 and GC 05 remain the same, as also does the "message" style. We are compiling a list of these "messages" over the years and will publish our analysis. We welcome logs of these daily single 5fig groups. Reception in Britain has much improved as a result of this change; signal strength and readability are good. What can all this mean? Previous schedule changes have borne no relationship to seasonal propagational factors, and nor does this one. While the last schedule was clearly intended for short range communication, i.e. "Czechoslovakia" and surrounding countries, we were beginning to think that S17 was related in some way to Border controls. Now, having moved up by around 4MHz, this would imply that the target has moved further away - Britain, Russia perhaps? The 1st Jan changeover seems to indicate a "changed mission" related to a new posting.

At this point, we feel that it is worth reminding readers that the Czech for "three" is "tři", the "ř" being pronounced with a distinct "s/zh" sound, the most difficult Czech sound to reproduce by an English speaker. This has caused confusion, and more than once we have received logs where 3 is given as 6, e.g. 616 given as addressee. Czech for "six" sounds similar to that in other Slavic languages - "šest".

M39 has been logged a few times as expected - always being totally unpredictable as far as scheduling is concerned. Details, therefore, are not really worth reporting, but we hold onto them just in case! Always uses 2 parallel freqs. Recently the classic 007 "ID" appeared again.

FAMILY X - this section follows later.

FAMILY XI - "Swedish Rhapsody"

No changes - see previous issue. It increasingly looks like that we've heard the end of that familiar musical box and little girl's voice. What momentous decision lay behind this unheralded change? Still only four messages per month.

FAMILY XII - this section follows later.

FAMILY XIII

Some interesting developments this time, concerning both Morse and voice operations. The regular 1800 daily M29 transmission (and its repeat at 2000), since 1st Jan, has dropped its simple format (M29A) in favour of the longer M29 format used on other schedules - which includes a date/time group, GC and further two figure group (purpose unknown). New messages are generally sent every Monday, and last all week. Frequencies change monthly. The TUE "morning" M29s at 0800 & 0830 are now also repeating at 1400 & 1430. (5520/5620 in JAN)

G4, the 3-Note Oddity, has been doing some odd things lately. Messages are no longer rigidly restricted to one per month. They have been noted "carrying over" into the next month, or appearing early. e.g. the October message was 1st sent on the last Sunday of September - on the September frequencies. Message structure of G4 and the above M29 schedule have always been of the same unique non-random type.

However, a very different message was sent on the November Sunday schedule without any of the usual groups/part groups. its first & last groups were the same,



and non-standard: 03040. Its second group was a highly unorthodox 00030. As 30 groups were sent in all, was this a GC? All other groups seemed to be non-random, which can only mean that a more conventional form of encryption was being used, and that text may have been involved.

G4 (UK SUN evening) freqs. since last July are as follows:

JUL 5840/5740 (highest)	NOV 3940/3840
AUG 5755/5655	DEC 3380/3280 (lowest)
SEP 5310/5210	JAN 3415/3315
OCT 4685/4585	FEB (? but increasing))

All still at 2105/2135. Morning transmissions at 0400/?

#### FAMILY XIV

M1's End of Month transmissions are becoming less rigidly scheduled. Whereas not so long ago these would be 100% predictable - "last Saturday" and both "last Thursday of month" schedules - now they can appear on both "last Tuesday" schedules. also, the operational codes 020 & 040 occur far more often than in the past. The "A" network GCs are more conservative (i.e. closer to 40) than earlier last year, and schedules follow the usual stable pattern. "B" network schedules are never as stable, and far more complex. A record GC of 91 was sent on MON 18th Jan (2210: 4613 SN: 136). The same message was carried on two related schedules: 514 (THU 2132: 4990) and 419 (FRI 2202: 4705).

Sporadic M1 "C" network transmissions have been reported as usual. These reports often come from Eastern Europe/Caucasus.

M45 is still on 4025//3525 (MON & THU 1802) but is expected to move higher soon. S21: as last issue. Three schedules; possibly still a fourth on SAT 0800-1000 period.

#### FAMILY XV

M13's schedules are gradually giving up their secrets. We mentioned in the last issue the way some schedules, far from disappearing, actually change their SNs. M13As do this monthly, but non-A 590 is one of these too (also the only one with unusually long GCs), sharing 261 as SN. Schedules predicted for FEB include: 158 175 228 253 254 261 272 281 284 346 378 387 411 417 419 501 517 714 751 803. The unknown FEB M13A schedule is due on MON & TUE 8th/9th/22nd/23rd - Freqs not known - but JAN: 5274/84. In the next issue we hope to give you an example of a prediction chart for the following month.

E18 is still with us, only running a single schedule (always 307) 2100 1st & 2nd WED & THU of month. During the summer 8025kHz is used. By December (2200) it was hiding in the 49m BC band on 6120kHz! Message No. was 125 in June, yet reportedly only 127 in December. Most M13s send a new message each month, but this schedule had only sent two since June.

G22 is still about too, with its single schedule (SN/s not known). In August (1st THU @ 2200) this one was also hiding in the same area: 5928kHz. (MN: 186) Offers to keep track of these two would be very welcome.



#### FAMILY XVI - Romanian

Reports of M63 (Λ2A) continue to trickle in. Several outstations are frequently called, all using similar call sign structure. Predominantly uses FSK, now apparently 115.73bd/425Hz shift. More on this in a future issue, meanwhile, please send in all logs.

#### FAMILY XVIII - Cuban

Still very active and running very many, reasonably stable schedules both for Morse (M8) and voice (V2 & variants). Some of the signals, especially M8's are very strong in Europe. There's one on at this very moment, as I write this (30th Jan 0700), and I find it very hard to believe it's coming all the way from Cuba - the strongest signal in the upper 6MHz region, with no sign of fading. As publishing its schedules would fill a page or more, we simply don't have the space, but can supply details on request.

Two new V2 slots are at 0300 MON, 6826 & 6855kHz. It's not unusual for this family to use very close freqs., such as these two, simultaneously. Another: 0100 TUE 6778

#### FAMILY XIX - French

M51 is as busy and inscrutable as always. We're nowhere near identifying any trace of scheduling pattern. Obviously, the target recipients know when their (consecutively numbered) message is due (and on what frequency), but the mystery is: how? The French Numbers scene is very difficult to penetrate. M16 (8BY) may run 100% predictable schedules, but only lists addressees without accompanying traffic; the mystery is how do they receive their messages? Possibly via satellite? If so, they'd need access to appropriate equipment, without risk of being compromised.

NOTE: Any "0" category stations not listed below may be covered in the second section - Apologies for the inconvenience.

0 M23 - See also feature in this issue.

Weird and wonderful goings-on continue unabated. After a short break around New Year the regular MON-FRI "interlocking" schedules on 7795 (at 1000 & 1630) returned with a whole set of new messages. Some of the old set were several months old. Generally, each message is day-of-week related. Either the same one, or a new replacement is sent on the same day of the following week. These schedules never send null messages. SNs change with each new message and are always made up of 3 even numbers. Meanwhile, the marathon "579" schedule continues on 8307//9285 daily at 0800 & 1400 - a message is still awaited. DF results locate this transmitter at Syracuse, Sicily - but is unlikely to be run by Italian intelligence. We suspect that other M23 transmitters are located elsewhere, and could be part of the Kilowatt Network. One day recently, at 0900 a mixed ID (unheard of!) - 532 - was sent for a couple of minutes only on 8307//9285. Nothing followed. Was this a test, an error?

0 M26/34

The usual thin crop of reports as expected. Unpredictable.



M26 had a burst of activity in October, mainly using "ID" 99, but also 95, and the very unusual 32. 98 is the norm. Reported behaviour is all very typical of this oddity. Its "text" arm, M34 was also active with: 92 31 - and messages to 31, 34, 32 and (oddly) 34 again. Full details not known.

M32 ("generic" - probably sets of unrelated stations)

Much activity as always, but not enough monitors. To enter into this area would be extremely time-consuming. Much as we'd like to know more of these stations, we been forced to treat them as "fringe" interests. They are not Numbers Stations in the usual sense, but any information would always be welcome.

0 M40 (Formerly M53)

In October moved from 8231 to its winter freq. 6820, where its DAILY transmissions continue at 2000/2100. In UK it is weaker on this freq. We'd very much like to know where this station is heard at good strength. Still using "ID" of 747, in effect its callsign. We have reallocated this station as M40 - which was logged several years ago. Due to an oversight, and lack of familiarity it was allocated twice. Whatever you call it we'll know what you mean! See Control List corrections.

0 M42 (Russian - run by FAPSI)

Very active. As these predominantly use data modes, we don't cover them in any detail, but nevertheless keep an eye on their activity. These were the old SOUD stations (and use the same callsigns) and probably play a similar role, both within the CIS and further afield. A few freqs. (many more): JMS 14843, JMS 13452, GMN 11637, GMN 9216

0 M43 (6XM8/C37A)

Still active as far as we know. Logs and any information would be very welcome. Not strictly a Numbers Station but a covert link between Israel & Germany.

0 M44 (4XZ)

Still active but much neglected. Logs needed to build up a picture of its activity, schedules (if any). A worthwhile job for somebody - any offers?

0 M52/56

Usual level of unscheduled activity - i.e. very low. When active, its two parallel transmissions are continuous and may last two or three days. M52, or at least one transmitter, has been DFed to Trondheim, Norway, although it's unlikely that it is run by Norwegian intelligence. M52 & 56 may be related to M23 - possibly different (national?) elements of an international network. Important to keep an eye on these.

0/VIII? M53 - see M40

0 M67

Still very little known about this station. Believed to be Turkish intelligence. Uses "cut numbers" (AUV4E6BDNT), 4fig message groups and ends with four zeroes. More logs eagerly awaited, Vladimir!

0 M71 (DEK88)



An oddity that appeared last year for a few days running, an hour or more at a time. Hand-keyed, the sending would begin at around 1045 on 6999kHz. Always "TEST DE K88" - this is what I heard many times, but also "TEST DE DEK88" was noted, and would seem to be the correct form. Keying was rather poor and erratic slowly tapering out after an initial flurry of calls. Its address is: Deutsches Rotes Kreuz, Funkstation DEK88, Auf dem Steinbuechel 22, 53340 Meckenheim-Merl. In a reply to an enquirer's letter, they claim that this test call was used "to give co-workers in the Balkans the chance to receive and transmit in the breaks". Rather ambiguous, and I'd never have expected them to be using hand-keyed Morse.

#### 0 M73

Another interesting member of Vladimir's (Georgia) "Caucasian clique". So far, no one else has reported this one. Sends three long tones before message (5F), and "cut numbers" (AUV4E6BDNT). Ending not known.

#### 0 M74

Yet another of the "Caucasian caucus". Uses a short zero, and sends a 3fig group followed by five 4fig groups.

#### 0 NEW DESIGNATION - M76

Introduced in a recent Short Wave Magazine article, this very interesting Numbers Station has burst onto the scene - first heard early December. Transmissions commence at 1750 DAILY on 3819kHz, and are of a very peculiar nature.

Four character bogus callsigns are used, always different and always indicating two-way traffic, when actually it is oneway. Here are a few early examples:

Mon 14.12 FATA DE BVF2 QTC 72 24 =  
Tue 15.12 PYUM DE 8BG9 QTC 74 22 =  
Wed 16.12 VX5A DE AFQ6 QTC 76 20 =  
Thu 17.12 UNHH DE NUOQ QTC 78 23 =

Calls are only sent ONCE and then once again in the repeat which follows the first sending after a long pause, so recipients must use pre-tuned receivers with good frequency resolution.

Unusually, short zeroes are used in the messages and long zeroes in the calls. This is because letters, including Ts are used. Also accented As and Us are used. The first pair of figures is the serial number of the first message, and the lack of odd numbers suggests that transmissions also occur at some other time, maybe on another frequency. The 2nd 2fig group is a GC for the first message, which takes a different form to all the following messages in that it is ever-present and its group structure is non-random and includes specific patterns and letters in certain groups. Its first group is always 26310. Typical last four groups are 89XXX RRRRR 206XX NNNNN = (the 206XX varies little but has sometimes been replaced by 207XX).

Another example: = 26310 (16 x random 5f) 00XXX RRRRR 206XX WWWW  
73851 77276 22727 522XX NNNNN = (note the interposed groups between the



206XX & NNNNN) N, R, W & X are the only message letters noted so far.

After reaching QTC 98 on 27 Dec, the transmission on 28th began with QTC 01 (an odd number, implying that these numbers run from 1-99, alternating even/odd at this 1750 slot). M33 (P8K) also did this. The other messages (between four and seven in number) all include discrete message numbers (2 or 3fig) and GCs, and always send random 5fig unpaired groups. MNs noted so far: 01 03 04 06 008 009 10/010 11 12/012 015 016 017 020 021 263 314 327 328 330 331 333 335 338 339. It seems unimportant whether single and two-digit MNs begin with zeroes or not. All these MNs gradually accrue over time increasing roughly in order. There are two distinct clusters: 1-21 & 263-339 at present (23rd Jan), both on the increase. Some messages are carried over, often many times, and as earlier messages are dropped, so are their MNs. Whereas other messages may only need to be sent once.

A very busy little outfit with many interesting features.

#### NEW DESIGNATION - M77 (P7X)

Although this is no newcomer, it is the first time ENIGMA has included it due to a suspicion that it was merely a tactical military transmission. Now, it seems that it's not. We receive few reports of it in Europe - it's very much a N American station. Tom Severt has supplied us with the following details:-

Auto-Morse 5-letter x 120 group messages. (paired? speed?) Repeated 15min later, but cut off in time for next message. Transmissions continue for several hours, e.g. 1600-1930. On the hour and half-hour transmission starts with two short bursts of high speed 850Hz shift FSK. (Details of call/preamble not known - perhaps someone could let us know).

Frequencies noted: 10692//5431.5 10692//8057 5879.5//? 4439.5//? Times various, incl. 0100, 0500, 1600, 1700  
Scheduling not yet known.

#### 0 MX

Much the same situation as last time round. A new development is the presence of a "V" SLT on 7002kHz in the 40m amateur band. Apparently, its been around a while, but hasn't been reported in Europe - but is strong in Japan. More articles on these SLTs are planned.

#### **More location disclosures in the future!**

j - 111 23/7 11/9 12/12 17/1 726  
DZ - 111 24/7 24/8 25/9 23/10 29/10 24/11 28/12 17/1 168  
PQ - 333 26/10 000  
940 - 04531 58848 73289 32176 58391 56398 34425 00651 51567 32767  
35932 07680 57821 89898 83233 45671 50538 29084 37289 12574  
90956 40320 66641 71841 37059 55275 78300 25216 75842 98683  
90600 60327 49498 37148 60078 87994 25501 01549 92062 54774 32739=  
718 - 2/ 455 3/267 4/ 982 5/484 6/087 7/212 111/0 222/3 222/7  
718 - BLAISE VIGENERE

"OMNIA VINCIT REVELAT"



## FAMILY II - CIA

E5 COUNTING STATION 3/2F ENGLISH - Traffic levels continue to be high. Schedules come and go which makes reproducing them in the newsletter ineffective by the time we go to print. Quite a few transmissions are running at the (present) maximum 215 group count. The schedules underwent major changes at the beginning of November with some transmissions changing to frequencies used in the previous winter season. In addition to the usual format heard in Europe and the use of the E5 voice (but not format) by E23, another new variant format as been noted in use. John (USA) sent us a cassette tape (very good signals in Arkansas,USA) of this previously unknown format.

Transmissions at 02.00 UTC 4670//5238 noted on June 11th sending ;  
000 000 000 COUNT 215 (the first groups were) 000/00 987/65 432/10 987/65 432/10  
(then random) 212/40 639/87 etc.

The transmission on 15th same time/freq sent 'call 049' the message starting COUNT 215 (the first groups were) 222/22 987/65 432/10 987/65 432/10 then random.

The transmission on the 16th same time/freq sent call '062' the message starting Count 215 (the first groups were) 333/33 987/65 432/10 987/65 432/10 (then random). All this is a departure from the rather conservative E5. Have any other changes been noted in European transmissions? It is interesting to note the time/frequency combination which would suggest a target in the Central/South America area for these transmissions. Thanks as always to Peter and to John and Bob in the USA for the information.

V5 COUNTING STATION 3/2F SPANISH -This station seems more active at present. Transmissions are sent during the period 01.00 and 03.00.

Noted at ; 01.00 WED & FRI on 15478//16050  
02.00 TUE & SAT on 12300//14420  
03.00 " " "

## FAMILY VI - BND

E16 - 2 LETTER - ENGLISH - We have had no reports of BL, DM or MD during the last period. The only English language 2 Letter station noted was AU which behaves in a manner unique to this call. AU was noted on MON Sept 14th at 18.00. One reports states 6765 and another 6645. 6765 is a known E16/G16 frequency. Normally AU is the only E16/G16 to use parallel frequencies so 6645 may be new and the // to 6765. The only other known pair for AU is 4821//4888 even closer to each other. Traffic in English seems to be in terminal decline at present.

G16 - 2 LETTER - GERMAN - In contrast, G16 remains fairly active with both WL and GK holding the fort. The frequencies are selected from the lists published in previous issues and the 'Booklet' so we will not reproduce them this time round.

G16 is noted at the following times. This is not a complete schedule.



MON 19.00, 21.30	GK.	
TUE 19.00, 20.30, 21.00 01.30	GK.	TUE 19.00 <u>WL</u>
WED 20.00, 21.00	GK.	
THU 19.30, 01.30	GK.	
FRI 19.00, 21.30	GK.	
SAT 20.30	GK.	
SUN 19.30	GK.	SUN 04.00 <u>WL</u>

GK addressee nos. noted are; 316, 477, 522, 571, 577, 740 & 846.

WL addressee nos. noted are; 026, 046, & 522. The GK transmissions on TUE & THU are heard well in the USA. Recipients 571, 577 & 316. Messages have been noted to 571 and 577 for two years now. All three addressee numbers receive the same message repeated multiple times. 316 has only been sent two identical 29 group messages so far; 571 and 577 usually receive 70+ group messages. Messages for multiple recipients never noted. The WL 04.00 transmission has recently used 5732 kHz to recipient 046. The United States Coast Guard and Customs service absolutely love the choice of frequency. They always have some colourful comments to make about it, we are informed.

#### FAMILY X - M.I.6.

E3 'LINCOLNSHIRE POACHER' - No major changes to report. A copy of the present operating schedule and frequencies can be found elsewhere in the Newsletter. The much trumpeted improvement in diplomatic relations between Britain and Iran does not seem to have filtered through to the jamming station. Many transmissions are still suffering heavy jamming. The idea that Iran was the source of jamming seemed too 'political' for Shortwave Magazine to handle, fearing a backlash it seems they edited our Lincolnshire Poacher article substituting the word Iran for 'Middle Eastern Country'.

Direction finding on the E3 signal continues to report that Cyprus is the source of some transmissions. With this in mind an interesting piece of information reached us from Darren (Cumbria) who spotted the following in 'Soldier Magazine'.

"The troops watch over Turkish and Greek Cypriot military movements and keep an eye open for smugglers, and even, ironically, real poachers. "Generally", said one forthright soldier, "we remind those who watch that this is British territory."

Demanding particular attention is the defence of the mysterious communications facility at Ayos Nikoloas ("Aya Nick" in soldier-speak). Not much can be said about this maze of spiky antennae and huge white dishes which protrudes blister-like onto the area beyond the Sovereign Base Area (SBA). But its defence against possible terrorist attack and espionage is vital. A platoon is on 24-hour stand-by within the facility and elements of the force can be in action within a minute. "It's a bit weird," said Lt Jason Sparks, who commanded the Aya Nick platoon during the (Soldier's Magazine's) visit. "We'll never get to know what goes on in here but we still have to protect it." By coincidence (or not perhaps) the Battalion currently stationed there are



nicknamed the poachers. In a separate development we have also been informed that some E3 transmissions are in fact sent to Special Air Services (S.A.S.) personnel operating undercover in the Middle East including Iraqi Kurdistan. Comments welcome.

We have still not had any feedback about the FSK transmissions which regularly follow E3 transmissions at approx. +48 minutes past the hour. Help required. An interesting event occurred on TUE 16th Dec at 18.00. The transmission on 5746/6959/9251 suffered an audio fault. Interestingly this affected only 5746 and 9251 in parallel. 6959 continued as normal with no fault. The error eventually led to the abandonment of the transmissions on 5746 and 9251. This leads to further speculation that two separate transmitter sites are used to create better path for the signal, increasing the chance of getting through. In the last issue (page 64) we carried a report about 'non-random' headers used by E3. This information set alarm bells ringing and questions have been asked! With regards to message group (I) until autumn 1995 this had more than one header per 14 day message period. In May 1998, the first time since late 1995 two headers were sent in the (I) message group, however, on these occasions the first two digits of the message group were not identical. It is also interesting to note that the (G) message group is no longer using headers on an annual basis (perhaps they did not like our revelations).

E4 'CHERRY RIPE' - The schedule changed (Thanks to John, Takashi, Simon & Darren) with effect of MON August 3rd and again in OCT 1998 and JAN 1999. Several changes have also taken place to the call-up part of the format. The format is now;

H+00 Cherry Ripe tune played ten times  
H+01 message number repeated FOUR times (not usual ten)  
H+02 Cherry Ripe tune 10 times  
H+03 message number repeated 4 times  
H+04 Cherry Ripe tune 10 times  
H+05 message number repeated 4 times  
H+06 Cherry Ripe tune 10 times  
H+07 message number repeated 4 times, six chimes, and into 5F groups x 2  
The message now commences at just after 7 minutes past the hour, clearly they no longer feel it is necessary to repeat the header for the full ten minutes. No similar changes have been noted at sister station E3.

The present schedule is: MON to FRI only

00.00 17499 22108	19.00 17499 22108
10.00 20747 23461	22.00 15624 17499
11.00 20474 23461	23.00 17499 22108
12.00 17499 20474 23461	00.00 17499 22108
13.00 17499 22108	01.00 19884 21866

All known frequencies for ref: 4768, 5325, 7484, 8320, 9263, 10452, 11570, 12056, 13440, 13866, 14469, 14871, 15616, 15624, 16104, 17499, 18684, 19084, 19884, 20474, 22108, 23411. If any freq. omitted please advise.



The 19.00 schedule is re-activated from several years ago when the station operated on lower frequencies at this time. We would suggest a check of all known frequencies at 19.00, 20.00, 21.00 and 22.00. The station appeared to have dropped from 3 to 2 frequencies, however this is now in doubt with reports of 3 frequencies in use at 12.00. We would suggest checking all known channels and searching for new ones. Latest direction finding information concerning the location of the transmitters suggests the Island of Guam. This is a U.S. territory and is therefore likely to be carrying E5 transmissions from the same site.

FAMILY XII 6647 & 11292 kHz

E9 MAGNETIC FIELDS - No reports received.

V8 EASTERN MUSIC STATION - Schedule 1st or 2nd SAT of the month at 18.00 (Summer) or 19.00 (Winter) on 6645 kHz. The station was noted on SAT June 6th, SAT July 4th, SAT August 8th (on this occasion the 2nd SAT of the month), SAT 5th Sept, SAT 3rd OCT (19.00). Not noted in NOV. Noted again JAN 3rd (19.00) with a ten minute transmission at low modulation. The tape was also heard been re-wound after the message. Baset by the usual problems of false starts, bad modulation, breaks in transmission and the omission of the musical pre-amble. This agency really must try harder.

STATION NEWS - OTHERS (0)

The following stations would appear to be individuals, and show no sign of 'family' relationships.

- 0 E10 PHONETIC ALPHABET - NATO STYLE - We mentioned something called the KILOWATT NETWORK in the last issue. We are also interested in learning more about The 'Wassenaar Arrangement' which is reported to be a new group which may include Russia, and also something referred to as the 'Club de Berne', an alliance of Western intelligence agencies. If you know anything about any of the three organisations listed above please contact us.

Thank you for all the E10 logs. In the next issue we intend to look at frequency usage and scheduling in much greater detail than space normally permits in this column, we have a large amount of information which we will be using in the next issue, therefore we are only going to give E10 a watching brief this time.

Most stations continue as normal with a steady flow of either messages or the '2' suffix - indicating no message. Some of the less popular calls have been active including TMS on 5339, ROV on 6370 and HNC on 6575. ULX was noted on 6 AUG with a 145 group message. A very rare variation to CIO2 was noted on 23 NOV with CIO 38R14T36.

KPA was very active between OCT 11 and OCT 15 sending message strings. (Thanks to Valeriano, Spain). The regular KPA2 was replaced by the following;

<u>11 OCT</u>	KPA 59	KPA 50L8	<u>15 OCT</u> KPA 50L15Z20D
<u>12 OCT</u>	KPA 20Z	KPA 50L9Z59	KPA 20D



	KPA 59	KPA 50L10Z2	KPA 59Z20D
<u>13 OCT</u>	KPA 201	KPA 50L11	KPA 20D
	KPA 2		KPA 50L21Z2
<u>14 OCT</u>		KPA 59Z20D	KPA 59
		KPA 50L13Z20D	KPA 50L22Z20D
		KPA 59Z20D	KPA 59Z20D
		KPA 50L14Z20D	KPA20D
		KPA 59Z20D	KPA 59Z20D
			KPA 20D

Study of the above shows a clear relationship between certain elements.

- 0 E15 PHONETIC ALPHABET - PRE NATO - No major changes to the schedule but we do have some new information concerning the transmitter site. Other changes include different 3-Letter calls to those previously noted. The schedule is given below, all transmissions are daily although time lines are sometimes rather erratic.

11.00	BEC	18000	17.00	FYP	14000
12.00	USP	17503	17.30	OSS*	5834
12.30	MSA	11170	18.00	USP	5834
13.00	BEC	11000	19.00	SAR	4130
14.00	FYP	14000	20.00	NAS	5530
16.30	MSA	6716	21.00	OSS*	4130

\* OSS seems to have replaced MSA on these transmissions.

Some time ago we made attempts to find a definitive answer concerning the location/agency behind these transmissions. Readers in Greece and several who visited the Greek Islands and Cyprus reported strong signals from this station which is often weak in the U.K. The peculiar use of reversed group counts suggested either an Arabic or Hebrew connection. One 'contact' strongly advised that we did not pursue our lines of enquiry and suggested we should not publish the location of the station describing the situation "as too sensitive". However, readers can make up their own mind. Information received at ENIGMA based on a number of directional fixes indicates that transmissions emanate from an area near Alexandria, Egypt. The DFs pinpoint the station on the coast near Alexandria. Comments welcome (including those from the Egyptian government, but please don't visit us at Chapel Street; it is only a mail forwarding centre).

- 0 V13 NEW STAR BROADCASTING - Well received in Asia and North America. Reported with good signals at 12.00, 14.00, 15.00 and 16.00 although reception in Europe is dependant on good conditions. All the following frequencies are reported active. 8300 9725 11430 13750 15833kHz. Usually starts at H+00 and/or H+30 with Chinese traditional music, then into Chinese female 4-digit numbers. Each sent twice. Carriers remain on 24 hours a day.

IMPORTANT CORRECTION We have received details that the station reported to be New Star Radio on 8375 khz is in fact not this station. Please make a note of this. See note re-Chinese language stations below.

V15 NORTH KOREAN - VIA RADIO PYONGYANG - (see also News Round-Up for details of Korean Number messages). Our monitor in Western Japan reports



increased activity from North Korea. Jamming is also taking place on some transmissions (presumably from South Korea). North Korean female numbers heard on the following frequencies with powerful AM signals.

621, 657, 702, 720, 855 MW, 3250, 3320, 4770, 5450, 5715, 5872/3, 6200, 6215, 6250, 6400, 6600, and 6715 kHz SW.

621, 657, 702, 720, 855, 3320, 6200 and 6400 kHz are all well known Korean Central Broadcasting and Radio Pyongyang's sister stations. 3250 kHz is a famous Radio Pyongyang frequency used to broadcast to Japan. 6215 kHz is a well known worldwide distress and safety frequency. These broadcasts usually start at H+00 with martial music for 5 minutes then into Korean female numbers. 621, 657, 702, 720, 855, 3250 and 6400 kHz commence only at 15.00. A lot of North Korean numbers start at 00.00 JST. Not daily. Following the numbers messages Korean music is often played for long periods. Occasionally parallel to 3320, 6400 and 6600 kHz. 4770 and 5872/3 kHz heard simultaneously at some of 02.00, 12.00, 14.00, 17.00 and 22.00. Very active at 14.00. But not daily transmissions. 4770 kHz is heavily jammed. At the end of the numbers, carrier is immediately switched off. 5450, 5715, 6215 and 6715 kHz are possibly irregular and independent activities without a parallel frequency. At end of numbers carrier is switched off immediately.

◆ Due to the nature of certain stations listed as Chinese we would like to clarify our present references, as best we can! Unfortunately our understanding of these is fairly limited. Irregular logs and lack of format and language problems all combine to create more questions than answers. (We are grateful to Takashi in Japan for his assistance and tape recordings). We hope the details below will be of some help. Clearly there are also several other maverick stations on the loose which are reported on a very occasional basis, including male oriental numbers. More information formats and logs welcome.

V9 CHINESE - 10750 kHz. Female heard repeating 4 digit numbers each sent twice. Powerful signal noted in Japan (also heard in Australia previously). Not daily. Also unconfirmed report of transmissions at 17.00.

V16 CHINESE - Mode AM 11028 kHz. Female heard repeating short messages with a good signal in Europe. No recent reports received.

V22 CHINESE - The only known frequency is 8375 kHz. We originally mis-reported this as New Star Radio - it is not. Sorry. 8375 kHz does not transmit characteristic Chinese traditional music at the beginning of the broadcast and repeats only short messages. The carrier commences at 11.55 or 12.55, then in to numbers at H+59 or H+29 for about 6 minutes. Carrier remains on with a strong 'hum' and is jammed until close at 16.15, repeating numbers every 30 minutes. Daily other than Sunday which is a holiday! We are not aware of the location of the transmitter or jammer at present.

V20 BORED MAN - SPANISH - The last report we received was in June on SUN at 14.13-14.25 sending 'R290' on 6868//4106. In the December 1998 issue of Popular Communications a report in the 'Communications Confidential column on page 66, an



"Albert Hussein" from Florida made the following comment...."Cuban Bored Man and Babblers traffic continues to be nonexistent. They have both disappeared about the same time an article came out in the UK based numbers station club "ENIGMA" newsletter which described them."(Thanks John for info). Can readers please advise if this station and V22 are still active?

V21 THE BABBLER - SPANISH - See comments above. No reports received.

X6 THE 6 TONE REPEATING - Still active on a wide variety of frequencies at various random times. We had an interesting letter from 'A' concerning these signals. He informs us that they are only noted in Europe and are associated with the former SOUD (now run by FAPSI) transmissions. Details in this and previous issue. He tells us "The transmissions start with a selcal of 6-tones (the system is called Mazielka), followed by the call sign of the recipient sent in ICW, then into RTTY where the preamble is hand-keyed, while the other system has an automated preamble. The Mazielka call-up is fairly new; it has been reported since mid 1994. The Mazielka is a selcal system that is used by the master station to wake up a station outside the normal fixed schedule. It is only used to catch the operator's attention, not to start the equipment remotely (just like the selcal in aircraft). The fact that they switch to Morse after the Mazielka is a sure sign that the operator has to prepare the equipment before they can start the transmission. The use of non-error correcting RTTY systems makes it practically impossible to establish a link automatically. The Mazielka has never been heard during the normal schedule times, so probably it is used when there are very urgent messages that cannot wait until the regular scheduled time. It seems that there are specific channels for rush traffic as well." These are interesting comments. We still have several questions. The X6 calls were around prior to 1994 (possibly in the late 1970s); did they simply act as a tuning signal then? The use of these as a special message system would explain the lack of any coherent schedule but do standard frequencies exist? Why do some X6 stations not send traffic, only the six tone call? Is this because they have failed to raise the out-station so they try another frequency? Is there a master list? Comments welcome.

► AN IMPORTANT NOTE CONCERNING CONTRIBUTIONS & ACKNOWLEDGMENTS - We would like to thank all our readers for letters, logs and information received. We also acknowledge the use of material from The World Utility Network (WUN), US based "Spooks Group" and e-mail intercepts. In recent months we have become aware of a significant increase in the level of interest shown in ENIGMA's activities from both the British and Overseas Special Services. As a result, we have removed the names of certain contributors from the Newsletter in order to diffuse the relationship between the contributor and sensitive information. We very much appreciate all contributions.

► NEXT ISSUE - Over the course of previous issues we have speculated and commented on the countries and agencies involved in sending 'Numbers' and other related transmissions. Much of this information is buried in various sections. In the next issue we hope to produce a concise summary of both previous and new suspected locations and agencies. Contributions to this feature welcome.



**E3) LINCOLNSHIRE POACHER FREQUENCY USAGE  
PER 14 DAY PERIOD BY MESSAGE SCHEDULE**

	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>	<u>G</u>	<u>H</u>	<u>I</u>
<u>16475</u>	A								
<u>16314</u>			C						
<u>16084</u>			C	D	E	F			I
<u>15682</u>	A			D	E	F			I
<u>14487</u>	A	B	C	D	E	F	G		I
<u>13375</u>	A		C	D	E	F		H	
<u>12603</u>	A	B		D	E	F		H	
<u>11545</u>	A		C	D	E	F	G	H	I
<u>10426</u>	A	B	C				G		
<u>9251</u>			C	D	E	F	G	H	I
<u>8464</u>	A	B	C				G		
<u>7755</u>		B							
<u>7337</u>					E	F			
<u>6959</u>			C	D			G	H	I
<u>6900</u>	A								
<u>6485</u>	A	B							
<u>5746</u>	A		C				G	H	
<u>5422</u>		B							

**HIGHEST TO LOWEST FREQUENCY USED PER 14 DAY MESSAGE  
SCHEDULE**

	<u>HIGHEST</u>	<u>LOWEST</u>
A	16475	5746
B	14487	5422
C	16314	5746
D	16084	6959
E	16084	7337
F	16084	7337
G	14487	5746
H	13375	5746
I	16084	6959

**NOTES**

The charts are determined by cross referencing the message schedules against the frequencies used for the 14 day period commencing MON 12.00 ending SUN 22.00.

- A) Is the only message schedule to use 16475 and 6900
- B) Is the only message schedule to use 7755 and 5422
- C) Is the only message schedule to use 16314
- D, E, F & I) are very similar in frequency usage.





## LETTERS TO ENIGMA



Welcome to another edition and into your letters straight away. We would like to welcome many new readers who have joined after reading our new bimonthly page "Attention 1-2-3-" in the British news stand journal Shortwave Magazine. Greetings to Darren (Cumbria) who writes: "It is your column in SWM that has eventually led me to purchasing a short wave radio. I have had an interest for many years but finally decided to buy a radio recently. Maybe in some of your future columns you may consider including more frequencies. If I have one criticism of Shortwave Magazine it is that there are not enough logs printed. I realise you are not the editor but maybe it is something you might like to bear in mind for future columns." We agree and will take your comments into account. Thank you also for your e-mail contributions and recordings. R (Oxford) wrote into say that the inclusion of our column in SWM had made the magazine a more interesting read. One question we are often asked is "do I need expensive equipment to receive Number Stations". The answer is no. By their nature Number Stations are in the main strong signals meant for reception on domestic type receivers. A simple receiver with full coverage 2.5 to 25 MHz and a length of wire should be sufficient to receive many stations. Knowing where and how to find them is a more complex matter!

Several readers (including 'D') wrote in following the screening of the television programme Equinox in August 1996. The programme entitled 'Russian Roulette' concerned the state of the Russian nuclear arsenal and the possibilities of an accidental launch. During the procedure for a launch one of the steps showed the orders been transmitted in Morse, the room featured a number of people in Army uniforms all sitting in rows with Morse keys tapping out numbers. It was stated that this procedure was practised frequently to ensure that it worked. The room was outside Moscow. (Do any readers know more about this subject?). He complimented the last issue of the newsletter, "It is always a good read and the diligence of your writers and listeners is worthy of much praise because you do produce some very high quality material and provide some good insights. In the Erwin van Haarlem article you put a query beside the comment on the transmission of information. This was a reference to sending information by secret writing, I believe, rather than a transmitter being used".

Some time ago we mentioned the C.I.A. World Factbook on CD-ROM. David (Colchester) wrote in to advise that he recently borrowed the 1995 edition from his local library. Inside was the name and address from which you could obtain the up to date version. The address given was : Tryfirst CD-ROM Service, Ramesis, Thornton Road, Bradford, West Yorkshire, BD1 2DX, U.K. Telephone 01274-737376 (Outside U.K. +44 1274-737376).

A few quick hellos now. First to regular contributor Alan (Nr. Solihull) he tells us that he is upgrading his listening post. Thanks for the logs and kind comments about the Newsletter. Our thanks to Ken (Doncaster) for providing copies of logs from the U.S. magazine Monitoring Times each month. He also comments on the current state of Shortwave listening which seems to be in decline, particularly concerning is the ability to interest new younger listeners. More SW broadcasters are closing services and increasingly only using satellite or the Internet to reach listeners. The high cost of equipment is also a concern. The boom in home



computers seems to have taken over from the fascination of DXing these days. On a similar theme Mr E. (Epsom) comments about the booming Internet. He says "I have resisted the Net to date, but am now forced to join the ranks. Because I run four PCs." He also mentions that it is not possible to obtain many programmes, upgrades, patches, etc., or even communicate with some manufactures except through the Internet. Welcome back to Ken (currently of Reading). He moves around so much that we can not keep track of him! In recent months he has resided in The Shetland Isles followed by Kraków, Poland and Reading England. Prior to this Ken used to live in Blyth, Northumberland. Are you sure you work in an opticians and not for some Special Service?

Peter (North Wales) has recently returned to the U.K. from the Falkland Islands. He asks if we know anything about the station MGU which he monitors on 597 kHz, the transmission is not C.W. mode, but the pulses are AM. This station begins transmission at 06.00 UTC and there is no break in transmission as late as 01.00 UTC. The callsign would suggest a UK transmission, but what is it? Comments welcome. Alain (Patay, France) tells us about information concerning Number Stations on his World Wide Web pages. Unfortunately, we were unable to read the address of your pages. Please send them again along with your own e-mail address so we can introduce readers to your Numbers pages. Moving further east, we send greetings to Vladimir (Georgia) whose logs are always of high quality and of great interest. We have had a few problems with the post to and from Georgia, but we are pleased to say that the logs we are now receiving via e-mail are coming in on a regular basis. Thanks for those, it is very interesting to see which stations are making it to your part of the world. Thanks also to Pavel for the logs received from Belgorod, Russia.

From Georgia to Germany, and Lars who sends us regular logs and information. The station you mention is not in Italian but is the Spanish language station V7. Thank you also for the (X6) recording sent via e-mail. He also mentions that the new Klingenfuss "CD recording of modulation types - Part Two is now available and includes signals from HAARP, Vocoder and many others. Staying on the subject of Klingenfuss for a moment Pertti (Finland) informs us that the latest CD contains an example of J3E (USB or LSB voice, suppressed carrier) the examples given are Lincolnshire Poacher (E3). Interestingly, these are listed by Klingenfuss under "Numbers Station located in Cyprus, J3E USB" and also include two different forms of jamming! Are Klingenfuss stating that LP is on Cyprus or simply repeating the information from another source?

Klingenfuss can be contacted at: Klingenfuss Publications, Hagenloher Str. 14,  
D-72070 Tübingen, Germany. Phone: + 49 7071 62830  
Fax : + 49 7071 600849

From Germany to The United States of America and Ray (Ohio). Who is interested in the Backward Music Station (XM). We are pleased to tell you that you can find lots of new information about this signal in our 'Buzz' pages of this issue. During the printing of Issue 15 we had the pleasure to meet Vicky who prints off over 1000 copies of her journal 'Tints' a monthly newsletter for cycling enthusiasts. She



told us several stories including one about her brother in law. "Emeritus Professor in Soviet Economics at Glasgow University. He was a Russian Jew, born in 1915 and escaped in 1917 at the time of the Revolution. He told me he went up to the University each evening to listen to the radio - I assumed he was listening to their 6 o'clock news but didn't ask. About 20 years ago he was one of about 120 Britons who were banned from entering the Soviet Union because we (Britain) had just expelled about 120 of their spies. He found this very frustrating as he needed to keep visiting to keep up to date on their economy.

During Mrs Thatcher's reign (of terror) he was invited down to Chequers one week-end to be briefed along with other experts. They made their points - and were totally ignored, he said. She obviously didn't hear what she wanted or perhaps expected to hear. Later he was sent to Moscow for six weeks 'To see if he could detect anything' especially re - who the next leader would be. He said he could not anticipate WHAT was happening". Sounds like an ideal SOUD suspect !

A letter of support was received from David (Copenhagen, Denmark) who writes " I enjoy very much reading your articles in Shortwave Magazine. They are well written, well set out and full of interesting facts. Best of all, they are a real and needed contribution to the history of radio. The information you write has been missing and missing without justification. (David also informs us that he has deposited a copy of our Booklet with the Royal Danish Military Library). The Cold War is over; NATO is not preparing for war with anyone. I had a very interesting experience with numbers broadcasts when I was serving with the US Army I Corps in April 1967 (the most northern part) in South Vietnam. One evening while manually scanning the bands on my team's PRC74 radio I heard a very strong signal reading numbers in Russian. I could send on the same frequency so I broke in on his transmission and nearly shouted into the mike "The Green Berets are listening here and we are going to get all of your sons of bitches". I spoke in Russian and hope some Russian advisor bending over his one time pad got a shock he still remembers".

We would like to send our best wishes to Geoff (South Wales) on his retirement as editor of "Ferrell's Confidential Frequency List" he started his radio career in 1933 as a wireless operator on fishing trawlers operating in Arctic waters. Forsaking the sea in 1937, he joined the infant Civil Aviation service at one of the world's first international airports, Croydon, south of London. There being as yet no radar nor VHF, virtually all communications with aircraft were effected by Morse code and aircraft positions were determined by direction-finding techniques. After WWII, Geoff joined British European Airways as a radio officer, but when later developments made his job redundant, he became a technical author until retirement. He has always maintained his interest in radio monitoring, putting his marine, ground station and aeronautical experiences to good effect. He tells us about a book which he loaned from the Public Library "Spies of the Airwaves" by Hugh Skillen, 1989, ISBN 0 9515190 0 X. 550 pages. It is all about the Army Y-service from WWI days until now. A lot of it is about units and titles thereof and officers names, but there's some interesting material in it about interception, codes and decoding. The author gives his address as ;  
56 St.Thomas Drive, Pinner, Middlesex, HA5 4SS, U.K.



Hello to Daryl (British Columbia, Canada) he regularly receives (E5) Cynthia - Counting Station transmissions on the low frequency of 4640 kHz with a MON to FRI transmission at 00.00 UTC. Considering his location it would be interesting to know what the target of this transmission is considering the optimum range of 4 MHz at minus 9 hours to UTC (15.00 local time)! Do other readers have any suggestions on either the transmission site or target for this one? Staying in Canada greetings to Eric (Vancouver), who kindly sent a 1 year gift subscription to friend and radio contact Alan in South Australia. Thank you, Eric for your kind comments about ENIGMA. Staying in Canada for a moment, do readers know of any facilities at Lower Fraser Valley, just east of Vancouver, BC, Canada?

A little closer to home now and regular contributor Rob (Essex). (Thanks for the logs.) He tells us most of his listening is confined to the late evenings. He also mentions the possibility of learning Morse. We wonder if any readers know of a suitable home tuition course? We have seen some which run on a PC but of course not everyone has one. Perhaps readers might write in and suggest some options? Quick hello to Van (Antwerp, Belgium). (Thank you for your logs). He is a member of the DX Antwerp Club and also the BeneLux DX Club. Also thanks for logs from Guy (Hampshire) for all his contributions, Gert (Zoetermeer, Holland), Richard (Hampshire), and Richard (Buckinghamshire). Thanks also for all the regular e-mail logs and comments including: Paul (London) & Peter (Saffron Walden) as always, John (Arkansas), Simon (Qld, Australia), Hans (Trier, Germany), and many others on the WUN and 'Spooks' list.

More letters and Steve (Nottingham) who is a first time contributor of logs. He asks about the layout of his logs. We hope to include a section on this in the second part of the ENIGMA Booklet. We receive large numbers of logs in many different formats so a move towards standardisation would be a good one. To Sussex now and Brian writes with details of his Web pages based on our "Things that go buzz in the night" section, (and very good it is) details can be found in the "Buzz" section this issue. Thanks you also for all the E10 material which we will be using in the next issue.

Welcome back now to Jonathan (Zimbabwe). (Thanks for your contributions.) He informs us that Zimbabwe has been in a state of economic crisis and political turmoil. The Zimbabwe dollar has fallen against the British pound (the U.K. is their second largest trading partner) from, at this time last year, 25:1 to about 65:1 with the result that the prices of most things, including basic commodities that are entirely local in content have gone through the roof ("band-wagoneering is especially rife"). He also comments on the last issue "The News Roundup column is great. I would never have become aware of many of the reports it contains, or at least only after some time. "D" does a good job with his special knowledge and the move towards grouping stations into families makes sense". Now from Africa to Asia. To Japan to be exact, and Takashi, who sent us a fine selection of logs and a cassette tape of stations heard in his part of the world. He asks several questions which we will attempt to answer. First, the German language station on 6727 (Oct 10th, 20.10) was most likely to be G7. He also comments on the Single Letter Transmissions (MX). In Japan the 'V' on 7002 kHz and 'F' on 7039 kHz



heard for at least the last 10 years cause bad interference to amateur radio stations operating in the Far East. Interestingly, the 7002 kHz transmission stops at 14.00 and changes to 3658 kHz. He asks "the 'V' station is reported to be from Tashkent or Khiva. Which is correct? And where is the 'E' station?" If only we knew! We have looked through our files and 'E' continues to remain as unknown, and two separate reports indicate the two different locations of 'V'. If it is any consolation some new information about Single Letter Transmissions can be found in the "Simon Mason Writes" column in this issue. It is, however, disappointing that so little has emerged about these transmissions after so many years of continuous operation.

Back to Europe now and onto Germany. First of all a change of address for the International Intelligence History Study Group (IIHSG). The new one is: IIHSG, c/o Burkhard Jähncke, Marienring 6, D-22043, Hamburg, Germany. Tel. & Fax : +44 40 6891 3000.

Some interesting feedback on the last issue. Our regular contributor Andreas (Germany) writes: "I find the new system of family/station relationships very useful. I have not got used to it yet, but as with the ENIGMA-reference number system, you get used to it as time progresses. I agree that schedule information is soon outdated and with ENIGMA appearing only occasionally, it is no use filling it with old schedules. Schedules can be better tracked on the Internet, via e-mail or bulletin boards; this is the right area for "schedule-enthusiasts". ENIGMA is a forum for numbers enthusiasts and should remain THE reference source for all aspects of numbers not just schedules. Re-"Letters" I can't agree with Harold who says that only certain languages are of interest. For example blind listener Christian cannot read but has learned numbers by listening to various stations. I had no problem learning Czech numbers although I cannot converse with anyone in the language. An e-mail address which may be of interest includes a list of numbers in different languages, including some sound samples. The address is :

< <http://www.traviang.com/languages/> >

in response to Dave (Shropshire) concerning the Schulungssender des Österreichischen Bundesheeres; this is still operating and the Turkish Police Radio station can be heard in the afternoon/evening on 7370 kHz. With reference to the "Bored & Lazy People meet Babblers": "Very, very interesting to read about these 'pointless' transmissions audible in the U.S. (see this issue Station News). But please don't make the mistake the Americans used to make (and in my opinion one reason for the sometimes poor material) - not everything in Spanish has to be from Cuba. That is much too easy. The Erwin van Haarlem case was a very well presented collection of information - I liked it. The same is true on the Odd/Even station, Part one. And the News Roundup, especially the articles about electronic espionage. I also read in the newspaper that Markus Wolf denied that he proved that the Swiss guard colonel Estermann worked for the MfS. Which statement is true? Where they both from Wolf himself? Some reports have suggested a major shake-up of the BND with long time head of counter-intelligence transferred to another job and his entire 500-strong department dissolved. The Americans are known to be chary about sharing information with an agency which it believes to be infiltrated with eastern European and Russian agents despite the Cold War's end." Thank you for all your letters, comments, logs and information.



## "THE FRIDAY NIGHT FRAULEIN" - A LOOK AT G7

By ENIGMA reader P. S. in Saffron Walden.

### ▲ INTRODUCTION

Among the ranks of number stations which may be found on the shortwave bands in languages other than in English, the German language female voice with the ENIGMA designation G7 is one of the most active. It is also one of the most predictable inasmuch as it has set schedules, some of which have been observed for several years. One of these is a regular appearance on Fridays at 18.00 UTC in the summer months, 19.00 UTC in the winter, which is 7PM in the UK, hence my appellation of "The Friday Night Fraulein". In fact, for me, hearing this lady on a Friday evening has become a regular fixed point and I have come to associate her with the end of the working week. Anyone in the UK old enough to remember the sixties might recall a Friday night television pop music show called "Ready Steady Go" which always began with an opening caption, "The Weekend Starts Here!" Well, the Friday G7 has come to have a similar sort of meaning for me!

### ▲ FORMAT

In order that we know which particular German speaking lady we are talking about, let us discuss some aids to identification. The voice has a high pitched, obviously synthesized quality about it; the pronunciation of the numbers in German is somewhat different to that of the standard form of the language; this may be either because it is non-standard dialect, or more likely it is a modified form intended to ensure greater intelligibility of the message under less than ideal radio conditions, in much the same way that in aeronautical communications in English, the number 5 may be spoken as "Fife", 9 as "Niner" and so on. This is how they sound; -

1 Eins; 2 Zwo; 3 Drei; 4 Fier; 5 Finef; 6 Sechs; 7 Siben; 8 Acht;  
9 Noyen; 0 Nuil.

There are two varieties of transmission: there is one in which a message in the form of 5 figure groups is sent and one in which no message is sent. The "Full message" transmission begins with a "Call-up" which lasts for five minutes and consists of a three digit schedule number - which is spoken three times, followed after a short pause by a single number which is the number of messages which are to follow, which apart from only one occasion in the several years I have been following G7s career has always been "1" (the exception was on Friday 22 March 1996 when 2 messages were sent) as in this example; -

Sechs	drei	zwo	sechs	drei	zwo	sech	drei	zwo	eins
6	3	2	6	3	2	6	3	2	1

The initial call up lasts for five minutes after which the voice says "Achtung", which is the cue that the message is about to be sent. There follows a three or four digit number; (This 4 figure decode key is an important characteristic of the whole of the Ib family) - this must have some purpose connected with the deciphering of the message, perhaps a page in a code book or the reference number of a one-time pad or something similar, ENIGMA members refer to this as the "Deciphering Key", DK for short; there is then a short pause followed by another



number of either two or three digits. There is no mystery about this; it is the number of 5 figure groups which will follow, the "Group Count", GC. The DK and GC are spoken twice, for example:-

Finef siben noyen	eins fier sechs	finef siben noyen	eins fier sechs
5 7 9	1 4 6	5 7 9	1 4 6

The message then follows in the form of 5 figure groups; these are spoken once only; this is emphasised because there are other German language female voice number stations in existence. One has the ENIGMA reference designation G6 and is much less active than G7 and whereas there are several differences in format between these two the most noticeable is that G6 speaks her 5 figure groups in pairs. When the G7 message has been sent there is a short pause, then 2 x 3 "zero" spoken:-

"Nuil nuil nuil	nuil nuil nuil"	followed by "Ende"
0 0 0	0 0 0	

A full message transmission is always sent three times on three different frequencies, the three sendings may be spaced from each other by from less than 200 kHz to two Megahertz or more; no doubt this is to give the recipient three chances to hear the message, in case propagation is poor, or there is interference on the first transmission. Usually, the repeats start twenty minutes after the start of the preceding sending, assuming the total length of the transmission is less than twenty minutes, which means a GC not exceeding 150 or thereabouts. If the GC is so long as to give a transmission time greater than twenty minutes, then the timing of the repeats will be adjusted accordingly. One interesting thing about these repeats is that the Friday 18.00 UTC G7 - the repeats are on frequencies lower than the first sending, for example in June this year:-

First Sending 10227 kHz, second sending 8127 kHz, third sending 6827 kHz.

Whereas on those occasions when G7 has turned up earlier in the day - as was the case during the winter of 97/98 when there was a transmission on Tuesdays at 06.00 UTC, the repeats were on frequencies higher than the first sending:-

First sending 4556 kHz, second sending 5766 kHz, third sending 6766 kHz.

The other kind of transmission is of the "No Message" variety, i.e. no 5 figure groups are sent. In this instance, the call always starts with the word "Achtung", followed by the three digit identifier spoken three times followed by "000": -

"Sechs drie zwo	sechs drie zwo	sechs drie zwo	nuil nuil nuil"
6 3 2	6 3 2	6 3 2	0 0 0

This is repeated over and over for five minutes, the transmission finishing with the word "Ende".

With a "No message" there is only one repeat; this is sent on another frequency



five minutes after the finish of the first sending.

### ▲ SCHEDULING

Where a regular schedule for G7 has been established, frequencies may often change on a monthly basis along with the call. Note that many schedules such as the one below use a different schedule number for each set of frequencies and that this number is made up of the 3 frequency's 100 kHz placing. (This explains why the Saturday morning repeat transmission of the Friday evening message is a different call-up/schedule number).

There is a tendency to move towards higher frequencies as the hours of daylight lengthen and conversely, lower in the winter months; for example, the Friday 18.00 UTC summer/19.00 UTC winter:-

#### FRIDAY 18.00 UTC SUMMER or 19.00 UTC WINTER

<u>MONTH</u>	<u>SCHEDULE No.</u>	<u>F 1st SEND</u>	<u>F 2nd SEND</u>	<u>F 3rd SEND</u>
JAN	164	5127	4627	4447
	"164" =	←←←←←↑	↑	↑
FEB	464	5427	4627	4447
MAR	696	7627	5927	4627
APR	118	9127	8127	5827
MAY	218	10227	8127	6827
JUN	218	10227	8127	6827
JUL	419	9427	8127	6927
AUG	213	10227	9127	7327
SEP	177 *167?	9127	7627*	5747
OCT	771	6727	5747	5127
NOV	764	5747	4627	4447
DEC	164	5127	4627	4447

The above schedule has been faithfully adhered to for the last couple of years, but we give no guarantee that this will remain so. (Not all schedules operate 12 months/year).

With the passage of time it has been apparent that there are other regular slots in which G7 can be expected to be heard. There is one on Saturday morning with the first sending at 08.00 UTC in the summer, or 09.00 UTC in the winter months. This is a repeat transmission of the preceding Friday evening transmission, but due to different frequency usage the schedule number is different. As with the Friday night, a full message will be sent three times, the first being on a high frequency and the subsequent sendings on frequencies lower in the band.

There is a regular schedule on the second and fourth Thursday of every month with the first sending at 19.10 UTC in the summer months, 20.10 UTC in the winter. Although I have been observing this one for almost a year, it has always been a "no message" transmission of five minutes duration which means just one repeat five minutes after the ending of the first transmission on a lower frequency.



On the second Thursday of every month there is a regular transmission with the first sending at 21.30 UTC in the summer, 22.30 UTC in the winter months with repeats on lower frequencies, and on the Sunday after the second Thursday in the month the same message - but with a different schedule number - turns up with the first sending at 07.00 UTC in the summer, 08.00 in the winter months, with the repeats on higher frequencies.

Note that G7 shifts an hour with regard to UTC in spring and autumn when the clocks change so that she turns up at the same local time; perhaps this is so that the agent receiving the message does not have to change his routine. However, an anomaly has been noticed with regard to this. Last summer, 1997, the "Friday night Fraulein" dutifully turned up at 18.00 UTC, which is 7PM British Summer Time, every week without fail; but on Friday October 7th when I tuned in at 18.00 on the expected frequency there was no trace of her; but she did appear 1 hour later at 19.00 UTC, 8PM BST. Now I could understand the shift of an hour due to the clocks changing but summer-time still had several weeks to run, both in the UK and, as far I am aware, in the rest of Europe too. This meant that for the remaining Fridays in October G7 turned up at 8 PM clock time. After the end of BST on the last Sunday in October, everything came back into sync. so that the Friday G7 turned up at 7PM clock time again.

Exactly the same thing happened on the first Friday in October 1996. There was no anomaly at the other time of the year when the clocks changed, at the start of summertime in late March.

#### ▲ MISTAKES/OBSERVATIONS

Which brings us to the subject of mistakes. There is seldom any problem with the signal strength of G7; the transmissions have a lot of kilowatts behind them giving good reception in the UK. Since the mode is AM - with both sidebands, none of your new fangled single sideband suppressed carrier here - it can be received on domestic type receivers with a shortwave band. The only occasion when a G7 has been weak enough to cause concern was on Friday November 7th 1997 when all three sendings were very weak indeed; but many other shortwave signals were weaker than usual on that evening, and it was subsequently learnt that the sun had sent a stream of particles in our direction some time earlier, seriously degrading the ionosphere. The choice of some frequencies is a bit bizarre since a few of them, such as 9427 and 7327 kHz are shared with fixed service users and other broadcast stations operating outside their allocated area, with resulting mutual QRM and difficult copy. Short breaks in transmission are not uncommon, lasting a second or two but not often of longer duration. Perhaps the transmitters are very old and in need of a bit of work inside with a soldering iron.

On several occasions between May and August last year a rasping, low frequency buzz was noticed in the background, too low in pitch to be typical mains hum but perhaps some kind of instability in the modulator stages.

During the preparation of this feature several other unusual incidents were noted. For reasons only known to the operators the regular FRI evening/SAT morning



transmissions appear to no longer carry the procedural words "Achtung" & "Ende" \*(see note below), however other G7 transmissions continue to use them. Also noted on OCT 23rd the FRI transmission used the G6 voice with the SAT morning repeat using the correct G7 voice. The MON evening G7 transmission also appears to be sticking to GMT and as not made the expected adjustment for the end of summertime.

#### ▲ FAMILY RELATIONSHIPS

Our German lady has several close relatives who venture out onto the shortwave bands in other languages. All follow a similar format to that described above

\* (however G7, is the only one to use procedure words in addition to numbers i.e. "Achtung" and "Ende". The reason for this has never been explained) and all have a synthesized quality about them and are:- A Russian man, ENIGMA designation S7, an unmistakable "tinny" sounding voice, more active at the time of writing than he has been for some time. A Spanish Man, V7, which these days seems confined to quick "No message" excursions on Fridays. And an English speaking man, E7, fairly active but does not follow schedules as well defined (i.e. long-term) as his German speaking cousin.

As if this were not enough there are two non-voice set ups which are part of the same undertaking. First, the Morse station, ENIGMA designation M12, one of the most active of number stations whose format exactly parallels that of the G7/S7/N7/E7 family. The other non-voice format is that of the Polytone transmissions, ENIGMA designation XPH, which although meaningless to the casual listener, (the recipient must use a special decoder to make anything of it,) again follows the format with regard to the timing between repeats. Further evidence of the relationship between XPH and G7 was noted when the low frequency buzz problem which affected some G7 transmissions last year also manifested itself onto the carrier of several XPH transmission around about the same time. (All these are family Ib members).

#### ▲ LOCATION/AGENCY

Perhaps the time has come to suggest from where all this activity originates. The general consensus of opinion is that G7 and her relatives have their home in Russia, and are the means by which a wide network of agents - receive their instructions from Moscow. Perhaps it is part of a spy network carefully built up over many years by the former Soviet Union and now under new management; a widespread organisation of which there is little public awareness except on the rare occasions when an agent is caught in the act and brought to trial in a court of law. To the casual shortwave listener these transmissions are just groups of numbers, but to others - perhaps living just a few streets from you - they have an altogether more purposeful meaning.

"000 000 ENDE" (sometimes).

P.S. Saffron Walden.



## THE CURIOUS CASE OF THE SWISS SECRET SERVICE THE BBC AND S.R.I.

Once upon a time (all good stories start like this) ENIGMA reader David (Wales) was having his breakfast and listening to the BBC World Service on 6195 kHz. The date Friday 5 June 1998 and the time 05.40 British Summer Time. David admits he was only half listening (most people do to the BBC) when suddenly he heard a few seconds of a Numbers Station, followed by the comment that the station sounded harmless enough, but it originated from the Swiss Secret Service. "It was something they were going to have to explain," said the report. It went onto state that the Swiss Secret Service was facing moves to make it more accountable.

David contacted ENIGMA to say that he was unable to identify the short burst of traffic but had contacted the BBC in the hope they could provide more details. His e-mail sent that day (5th June) finally received a reply on 23rd June.

"The item you heard in the early morning of 5th June was part of "The World Today" which is a topical news programme and is not repeated. As World Service news programmes are not transcribed, and recording cannot be supplied for copyright and contractual reasons, we cannot, unfortunately provide more information than the following. The report was filed by our Berne correspondent, Imogen Foulkes, and was about the Swiss Secret Service having to fight for survival and "take a step out of the darkness" by explaining to the public exactly what they do and why they do it. We are sorry not to be able to assist further, but hope this helps in some way."

At the same time David had written to the BBC, ENIGMA also sent off a letter in the hope of making a two pronged attack! No reply, so we wrote again, no reply. The only way to prompt the BBC into action is to write a letter with the word 'complaint' on the envelope. Finally on the 14th August (10 weeks after our first letter) the BBC replied. They stated "there is no record of your letters at this office". The remainder of the letter was almost word for word the same as that sent to David back in June.

The only additional information we received was a rather bad photocopy of the running order of the news which contains the 44 word introduction to the 4½ minute taped report which followed.

So much then for the BBC - helpful does not seem to be their middle name! Not to be down heartened (after all, years of investigating Number Stations gives you a healthy appetite in dealing with unhelpful organisations) we decided to write to Imogen Foulkes via the Swiss Broadcasting Service in Berne. Off sped our letter on 24th August - back did not speed a reply. We wrote again on 3rd October - (it seems the same people that work at the BBC World Service also open the post at Swiss Radio).

At last a reply - dated October 5th (seven weeks after our initial inquiry). Imogen Foulkes wrote :-

"Thank you for your letters enquiring about my piece on the Swiss Security Service. Sorry not to get back to you sooner, but I have been on foreign assignments recently and therefore out of the country. I'm afraid I can't really help you with your enquiries. The recording of the Security Services monitoring unit was made available to the press in the run up to the nationwide vote on the future of the service, and can't really be described as important (otherwise they wouldn't have released it to us, as I'm sure you understand). I don't have a copy of it any longer, and, radio being the temporary thing it is, I don't even have a copy of the piece I did. Neither Swiss Radio nor the BBC keep pieces very long - we just don't have room. However if you want further information about the Swiss Security Services I suggest you contact directly".

It is alarming how inefficient both the BBC & Swiss Radio are at replying to listeners letters. At present many International broadcasters are abandoning SW services to Europe in favour of satellite or Internet broadcasting. The responses received represent nothing more than a 'brush off', in both cases prised from them. Disappointing to say the least. After all we are only members of the dwindling audience. We will let you know what the Swiss Intelligence Service has to say !



## THINGS THAT GO BUZZ IN THE NIGHT I

Welcome to another 'Buzz' column. First thank you for all the 'feedback' (no pun intended, see BMS below) which is most appreciated. We are going to start with a closer look at the Backward Music Station which seems to have caught the imagination of many readers.

XM - Backward Music Station - Before we get into the detail we should just mention that some readers may know this signal as 'Whale Noises' which is a description used in several American publications - perhaps because of its curious sounds. We have monitored the signal for quite a few years now and during that time it seems to have gone through something of a metamorphosis. Debate on the purpose of XM seems to be mixed, so we will examine the evidence and await your comments.

Some well circulated rumours would have us believe that we are wasting our time with this signal - it is nothing more sinister than feedback from HF telephoner circuits in Algeria, which leaks the RF back round the circuit when the primary transmission mode is not present - hence the howling, or whale noises. This explanation was also been offered up for 'The Crackle' (XC) as well, described as pop-corn noise.

Why we should be steered towards Algeria is something of a mystery in itself, but it could have something to do with equally persistent rumours that the U.S. Navy is involved. But why ?

Attempting to attack the signal with a variety of equipment from tape recorders to decoding software seems to have done little to determine just what it is meant to be and at this point the jury is out. Three schools of thought exist at present -

1) Algerian feedback. 2) An unsophisticated data stream. 3) Chaos in synch.

Starting with Algerian feedback - at present this is one for the back-boiler - we have never monitored a telephone conversation - have you? Several readers have sent us detailed information. The unsophisticated data stream is next up. ENIGMA reader A. writes " I was recently told that this (BMS) is a U.S. Navy device. The person who told me didn't want to say what it is due to security reasons. Although we have little information, I still think that the stations are of military origin. They have been noted on or near NATO/ANZUK frequencies. If there is a security risk, then the device is more than a marker or jammer and may indeed transmit something other than the weird sounds. I doubt that it is a sophisticated data stream system. We noted 75 and 100bd encrypted transmissions on several frequencies when the BMS was on the air. The transmissions stop when the RTTY is being transmitted and resume afterwards. The RTTY stations are all using NATO-style encryption".

Chaos in Sync? Regular contributor Paul (London) sheds more light on the subject with an interesting revelation. He writes: "An article in the 'Scientific American' August 1993 pages 101 to 103 inc. is entitled 'Circuits that get Chaos in Sync' written by Joseph Neff and Thomas L Carroll. The first paragraph outlines the usage of this peculiar investigation.



Chaos is not always so chaotic. In some sense it can be predictable: two systems can be designed so that one exhibits exactly the same chaotic behaviour as the other. In other words, the systems would be synchronised. Such devices might be useful for encrypted communications. For example, one of the systems could conceal a message within the chaotic signal. Only someone who possesses the second system would be able to decode the transmission, by subtracting the chaotic signal and leaving behind the message.

A simple circuit is shown, using precision components. This has been demonstrated to me on two occasions in the past year and works well. Different signals have been encrypted using the technique; when heard in the encrypted state music sounds like a series of squeaks, whistles and bumps that ride a heavy base-band of noise. The decrypted signal is of reasonable quality and the music is sufferable. The problem is obtaining 100% synchronisation for perfect reproduction (this is after all a lab experiment). Perhaps of significant interest one of the authors, Thomas L Carroll, is stated as '....works at the US Naval Research Laboratory. He looks for applications of chaos and has patents pending on some chaotically synchronised circuit designs.'

Activity levels from BMS have remained high in recent months and active frequencies noted have included 4706, 4802, 5178, 6695, 6753, 7525 and 7573. According to DF information received, the following frequencies at least - 4706, 5178, 6695 & 6753 are transmitted from a U.S. Naval base at Palermo, Sicily. Reports indicate that the BMS is a NATO communications device. Pensacola, (Florida) is another likely site. Another station from Sicily - see M23.

HAARP - Staying with the U.S. Navy. It is some time since we last mentioned HAARP and the debate about it continues to rage on. The official line has not changed and the operators continue to state that it is completely unclassified. It will not burn a hole in the ionosphere and is not designed for military purposes. A whole host of interesting statistics and facts can be found by viewing the official HAARP web page at < <http://w3.nrl.navy.mil/haarp.html> > HAARP seems to be totally ignored by the British media, so if you have not read about it here are a few brief details. HAARP is the High Frequency Active Auroral Research Project which is situated in Alaska. When it is complete it will consist of 180 antennas on a total land area of 33 acres. The total transmitter power will be 3,600 kilowatts. The facilities aim is to study the properties and behaviour of the ionosphere.

All is not quite as it seems if you read John Quinn's HAARP alternative pages. Recent documents we have received run to some 25 pages so we can only give you a taste of the alternative points raised. The latest reports now indicate that the Navy has more or less completely taken over administration and operation of HAARP and that the Air Force is no longer involved in any significant capacity. It is also suggested that certain of the photographs on the navy's "official" HAARP website betray the fact that the photos were doctored - a structure visible in the photo proves that (at least one of) HAARP's transmitter site(s) is no longer in Alaska, if it ever was, but is in fact on Long Island, in Westhampton pine barrens quite close to Brookhaven Labs - the nearby structure seen in the web page photo is part of Brookhaven! The photos were altered



by adding mountains in the background, to maintain the lie that HAARP is being operated in Alaska. Unconfirmed accounts state that HAARP has as many as 36 sites in operation at this time. Other information suggests that work is underway on implementing "Star Wars" particle beam technology apparently in planetary defence operations. A separate leaked document suggests a massive malfunction of the HAARP related particle accelerator on Ascension Island is being used for interdimensional experimentation. According to the alternative viewpoint HAARP is engaged in a series of classified activities which include:- Enhancement of or interference with communications, as well as development of new types of radio transmissions; Manipulation of weather patterns; Weapons-related (physical/psychological disablement) and mind control uses; Earth-penetrating tomography - an X-ray like function which can reveal, for example, the existence of underground installations as well as oil or mineral deposits; Detection of electromagnetic seismic activity which may precede earthquakes - and triggering of such activity; Generation of gravitic waves, interdimensional/time "portals" and other highly esoteric, relativistic phenomena. Pushing the "envelope" in terms of pumping electromagnetic energy into the ionosphere, just to see what happens. Drawing astronomical amounts of electrical power from the ionosphere.

Back on the official line the published frequencies for HAARP tests are 3400 kHz and 6990 kHz. The schedule is according to the operators "subject to specific ionospheric conditions" and must operate on a "Not-to-Interfere-Basis". Comments welcome.

S28 (Formerly XB) THE BUZZER - Still alive and well on 4625kHz. No repeat of last years message was noted during the Christmas period. We had quite a few letters and e-mails following publication of the text of the only reported 'message' in the last issue. Most reports seemed to agree with our native Russian speakers - David (Florida,USA) e-mailed to say " I spoke to my boss, a native Russian, about BROMAL. He confirms the "dictionary analysis" in that it isn't a Russian word in any form unless it's a name, place, or acronym. It doesn't show up in any atlases either". Simon (Australia) scanned the internet for references to BROMAL. He came up with some 30, all of which appeared to lead towards the veterinary and pharmaceutical industries. Bromal is the common name for Tribromoacetaldehyde. Other more off-beat suggestions included dried spinal cord of Sturgeon and a fusion of Bromine and Aluminium. We would suggest that the use of the word BROMAL formed part of the coded element of the message and does not have a relevant meaning in everyday use. It is curious that the station used a word which has such an obscure meaning. (Russian chemists will certainly know it).

We recently received a quantity of logs from the mid/late 1980s (thanks to Costas). The Buzzer is noted to be operating on 4625 on 29th February 1988 at that time it was a 'Pip' every two seconds. He advises that it was active in 1981. Two questions. What is your earliest log and when did it change from a 'Pip' to a 'Buzz'? We have also noted that the 1 minute variation at h+59 minutes has started to appear at other times, it is possible that this variation may be of some significance. When it does appear at an unscheduled time it usually does not appear at the regular h+59 minutes.



S30/ XT - THE PIP Still alive and well of 3757 kHz 14.00 to 05.30 and 5449 kHz 05.30 to 14.00. We have had no reply from 'Intruder Watch' concerning this signal, however John (thank you for tape) who reported messages from the 'Pip' reports further activity. THU 3rd DEC at 23.44 UTC John writes "crackling (like a 'phone being picked up' then a male voice reading numbers in mostly 3 figure groups, then a crackle, pause then more numbers (probably a repeat)". Rimantas (Lithuania) reports a further message with a live announcer in the Russian language. This was noted on the 5449 kHz channel at 07.38 UTC, January 13th 1999. "Dlia (For) 014, 071, 206, 500, 634, 850. Kak slyshno ?" (How can you read me? Reception). At 07.39 back to pips. No answer heard on frequency. He also advises us that two transmitters are in use during the day/night channel change. According to the very latest information we have the station is reported to be from the Krasnodar/Volgograd area of Southern Russia. The 'Pip' seems more active with messages than the Buzzer. Keep an ear out.

XF - FADERS Following our report last issue that at least one 'Faders' transmitter site was located in Britain, we have received some interesting feedback. Kai (Oslo, Norway) wrote to say "One category of stations that interests me a lot is 'Faders'. I've monitored them on a vast number of frequencies over the last year or so. It was interesting to read that these stations could in fact be located in Western Europe. Well, I can't hear any 'Faders' here during the day, so I guess there can't be any in Scandinavia or, say Northern Germany". Thanks also Kai for the kind comments about ENIGMA.

We suggested that 'Faders' may be part of the LOCE system - Linked Operational - Intelligence Centres Europe. Mildenhall, Suffolk which was identified as a 'Faders' transmitter site is home to some 392 personnel of the 488. Intel. Sq. (RC-135) USAFE - United States Airforce in Europe. The Joint Intelligence Centre, the European Command's (USEUCOM) Joint Analysis Centre (JAC) is situated at Molesworth in the UK. The JAC is already deep in the business of providing support not only to all US forces deployed in the European Command Area of Responsibility, but to a wide variety of NATO and coalition forces as well. Some reports indicate that LOCE is predominantly a satellite system others suggest a 'variety of communication pathways' are in use. Certainly 'Faders' appear on the face of it to be a European system with links to the US Airforce in Europe proven beyond reasonable doubt.

Correction In the Faders - Frequency Match List (Issue 15, page 36) Frequency A38 should have read 2031 kHz and not 20311 kHz. This was a new frequency introduced towards the end of the life of the "Inform Net" and was allocated the next available designator which placed it out of sequence. Thanks Richard for that information. Despite some success in locating a site the 'Faders' remain an unknown mode !

BUZZ STATIONS ON THE INTERNET Brian (West Sussex) wrote to tell us that using previous issues of ENIGMA Newsletters he has put details of "Buzz" stations on the Internet. He writes that "although there are some excellent sites on the number stations, there did not seem to be any sites dedicated to these bizarre noises". The address is: < <http://dspace.dial.pipex.com/brogers> >  
There are also some underground links which show the Cold War bunkers, missile silos etc. Hopefully the site may attract some more comment on "Buzz" stations.



THE BLANK CARRIER First off confirmation that this station transmits at every hour for 20 minutes every hour commencing on the hour (thank you Brian, for the reports). We do have some information, however, it is curious that it sends for 20 minutes every hour but does not change frequency at any time, remaining on 5305.5 kHz must provide the required coverage. Several letters have arrived with information about the transmission. Mike and Brian have analysed the signal and suggest the signal is idling synchronous baudot operating at about 50-100bd. The 20 minute transmission could be a test to check the circuit or it could come on air every hour just in case a message needs to be sent. (Not all transmissions are 20 minutes long, we recently monitored the signal between 16.00 to 16.49, it left the air and returned at 17.00 for 20 minutes). The "hum" is the sound of the two tones alternating every 20th of a second, this shows two steep peaks 250 Hz apart, centred around 220 Hz. It is also suggested that even if the station transmitted some data it would not be decodable as most synchronous baudot stations are not. We are still curious about the location of the signal and the likely receive site. The station was operating at the time OLX (S5B) used 5301 kHz with a strong signal. Comments welcome - decode enthusiasts take a listen.

OTHER ACTIVE SIGNALS We often receive letters concerning other unknown signals and modes many of which are either hi-tech data systems or totally unrecognisable sounds! One problem with the latter is that they do not stay still long enough to feature in our column. One signal we often receive letters about is the NATO Radar data system Link-11 code-named "Alligator". one of the most active frequencies is 9285 which seems to operate most of the time. Another frequency worth trying on a regular basis is 15065 - once identified you will find it on many other frequencies. Another signal which seems to have 'mushroomed' in recent years are those wide-band noise signals - they sound like a jet engine for want of a better description. These particular signals are very widely heard now and appear to have replaced many RTTY transmissions. Some to try in the UK evening time are 5850, 6205 6250 and 11540 which seem to be audible after dark, plus very many others. During a recent visit by ENIGMA to the Royal Naval station at Inskip near Preston, Lancashire the following frequencies were all active at the time of our visit. Some frequencies may be activated as required.

Wide-band 'jet signals' 3328, 6373, 8623, 14820.

Teleprinters 4245, 6433, 8494, 12737, 14507 (later 14513), 14838, 15901, 16938.

VFT 8085, 13840.

??? REPEATING TONES (Not to be confused with XPH or X6) We first noted this signal while listening to a transmission from the voice station E17. The tones which consist of two different electronic tunes of approximately 5 seconds duration each are noted in the UK afternoon period on 10240 kHz. The signal is only weak but may be stronger at other locations. Best reception in USB. Comments welcome.



## ODDS AND ENDS.....

Some things just don't slot into a particular section so we will cover them on this special page.

- ① NEW READERS - We would like to welcome the many new subscribers to ENIGMA who have joined as a result of our new bimonthly page "Attention 1-2-3-" in Shortwave Magazine.
- ② SUBSCRIPTION RENEWALS - If your subscription is due for renewal a form is enclosed with this issue. Thank you to all those readers who have recently renewed.
- ③ BACK ISSUES - Back issues 11,12,13,14, & 15 are still available at our normal rates of £1.50 UK & £2.50 Overseas (prices include UK postage/airmail).
- ④ NEXT SOUTH-EAST MEETING Following another successful meeting held in September we are pleased to announce details of the next meeting. In order to attract more members it will be held in London on: WED 10th MARCH 1999 - 7.30 PM (local time), in "The Queens Arms" which is in Queen's Gate Mews, South Kensington. All members are welcome.
- ⑤ QUESTIONNAIRE Thank you to all readers who have returned the recent questionnaire. If you have not yet done so, please return your copy to our office as soon as possible so that we can include your opinions. If you have lost your copy we will be happy to send you another. The results and your suggestions will appear in the next issue. Remember, we value your opinions and you do not need to include your name if you do not wish to do so.
- ⑥ ENIGMA BOOKLET We have had a 'great' response. Thank you. We are still working on Part Two and this will be automatically sent to all readers who have paid for the booklet. If you have not yet ordered, the price for both parts including postage is ; UK £5.00, Outside UK £7.00. Payment details as per normal subscription methods.
- ⑦ MESSAGE FOR 'D' Thank you for all information including J.I.C., J.I.M. reports and C.I.S. Intercept reports which are most appreciated.
- ⑧ CASSETTE TAPES & RECORDINGS via E-MAIL Many thanks to Takashi (Japan), John (USA), Alan (W.Midlands) Darren (Cumbria) John (Derby) and a regular contributor in Germany for each sending us cassette recordings & e-mails of various stations. We also received two other tapes. The first was an 'unusual' collection of music using various Number Station excerpts. The second was an anonymous tape containing a 'bizarre' recording of a numbers station which played the tune "Scottish Soldier" - Wedding March on a musical box (the air-raid siren was a most original touch). If you know anything about the latter two tapes please contact us - we would like to hear from you. Thanks.



In the last issue we discussed the "primary" format of this, most confusing of stations. Now we will start on the other formats used over the years. It is mainly the calls which account for the very many variants, so a complete list of these (noted so far) is useful. Schedules usually run a mix of message calls and null calls, but some carry entirely one or the other. Unless otherwise stated all calls last 10 minutes. (e.g. "R5" = repeated for 5min) A line of dots indicates a continuous (ungrouped) run, without pauses.

<u>Message call</u>	<u>Null call</u>
a) 3fig - all even	3fig - all odd
b) any 3fig - all even	not applicable
c) any 3fig - all even	any 3fig - all odd
d) 3fig - all even* R5	n/a
e) 666	111, 000 or 11111
f) n/a or not known	3fig - all odd R5
g) n/a or not known	3fig - all odd R15
h) n/a or not known	111
i) 2fig - both even	n/a
j) 2fig - both odd	n/a
k) n/a	any 2fig - both even
l) 00000 R5	n/a
m) 00000	22222
n) 00000, 11111 or 22	n/a
o) 00000, 11111 or 22222	n/a
p) 11111	00000
q) 11111	55555
r) n/a	00000 (short breaks every 2min) R20 s) I.....(short break every 2min) 00000
t) as above but preamble:	(GC)II(GC), no null call
u) II	00000
v) V.....(short break every 2min)	n/a
w) as above but preamble:	(GC)II(GC), no null call
x) VVVVVV R5 or 10	n/a
y) IIII VVVVVV preamble	(GC)II(GC) n/a
z) V..... R1	00000 R1
aa) n/a or not known	VVVVVV R5
bb) rapid dots (break every 2min)	any 3fig - all odd
cc) n/a or not known	any 3fig - all odd then rapid dots
dd) n/a	00000 or P P P P P I 00000
ee) n/a or not known	00000 R5
ff) n/a or not known	00000 or 11111 R10
gg) n/a or not known	0.....
hh) n/a or not known	I = = 0..... (1min cycle)

(\* these figures are message/day related - see below)



As you can see, this is all quite bewildering, but at least it gives an idea of what can be expected. Schedules using letters (I, V or P) have not been noted for a few years now, but knowing this station, this is no guarantee that they won't reappear. Other combinations of these are likely, and it all seems to depend on the fertile imagination of M23's operators. Much of the above seems arbitrary and certainly is so, however, hidden within it there are several oddities which could indicate that continuous null message schedules are not merely that. Some at least are more likely to be status indicating transmissions. Schedules dd) & ff) for example, each sent two alternative calls which probably each had their own meaning. Schedule e) which sent messages, also used three different null calls - why?

The use of colons/separation signals (II or .. ..) in t), u), w) & y) is interesting. This feature combined with the long zero, parallel frequencies and keying speed are all shared in common with M52 & M56.

Our longest running schedule so far (579) may turn out to be a continuous null schedule or may eventually surprise us with an all-even ID and subsequent message - in which case it would be a "primary" format schedule: a) in the above list. Monitoring its two daily transmissions over a further period of years is a daunting prospect! If it abruptly ends having never sent a message, would it be reasonable to assume that it a) never intended to, b) it would have done so if necessary, c) its mission was aborted before completion or d) its recipient/s have defected/died/gone insane with boredom? All these are possible, but if a) this would mean that it would have been operating solely as a status indicator, possibly saying, "Carry on with your mission - all is safe". If b) it may have been addressed to a "sleeper" and meant, "Stay where you are; await instructions".

Nearly all schedules throughout their lives operate daily at the same time/s and on the same freq/s. The rest may not appear every day of their lives, but are not tied to any particular day of the week, days being missed unpredictably. Long gaps, say of a week or more, within one of these schedules are rare.

Some odd/even type schedules may use any different 3 figures for either message or null calls. Others, including the "primary" format schedules always use the same figures for the life of each schedule. There is a third permutation of 3 figure calls - at present being used. This employs day-of-week and message-related even-only schedule numbers. Even, presumably due to the fact that all transmissions carry messages - which often carry over for many weeks. See under M23 in this issue's Station News for more information.

M23 is the only station which breaks the "ITU" format rules, which sometimes makes it difficult to identify by those unfamiliar with its tricks. Does it have a very different status to that of all the rest?

It is not only the calls which are subject to variation, but also endings, preambles and pauses, however these elements are far more consistent than the calls. More on this in the future.



## SIMON MASON WRITES. . .

All Times are UTC.

Hello again, and welcome to another column in the ENIGMA newsletter.

### NEW REVELATIONS ABOUT SINGLE LETTER TRANSMISSIONS (MX)

In his excellent book "Jamming", Lithuanian author Rimantas Pleikys shed some light on the mysterious Single Letter Transmissions, more specifically the "U" marker which was so common at one point that it even figured in a track by the German group Kraftwerk on their "Radioactivity" album. The book as a whole is a fascinating account of the whole Soviet jamming scene of the Cold War era as told by a man who grew up under the shadow of the oppressive jammers. Eventually, after Lithuania became independent again, Rimantas became Minister for communications between 1996-1998 and with his new status he was able to delve through some old records and talk to the people formerly working in the Soviet jamming field. A full list of all the call signs used by the transmitters is included. In a most interesting chapter called "Polish Polka", he says "After 25 years of watching and investigating how the radio jamming system worked, there still remains some unsolved mysteries. The history of jamming might be complete if we could only include the detailed technical specifications of the former USSR and other countries' jammers including their locations, ID numbers, quantities of transmitters, their power, the beams of their antennas, etc. Let's hope this information will someday be made available." (The same sentiments also apply to Number Stations).

Meanwhile, I would like to present just one unsolved mystery referred to as a Polish Polka, the jammer that blocked the CIA-backed propaganda station, Radio Free Europe's, Polish services. The jammer was unique in using instrumental pop music instead of the generator "white noise" or "Mayak" programme on RFE's frequencies from 1970 to 1980. One of the most favoured pieces was a Polish polka, a fast tempo folk dance. The same polka used to open Radio Warsaw's popular summertime live music/talk show, "The Summer with Radio", for many years." It seems folk music is common to both jamming and numbers broadcasts, Swedish Rhapsody(G2), Lincolnshire Poacher(E3), Cherry Ripe(E4), The Skylark(V1) and The Polish song "Zyt! Zyt! ("Hush Hush!")(S26) spring to mind.

Anyway, the main interest to ENIGMA readers will be the passage concerning Single Letter Transmissions (MX) and in particular the "U" marker. Mr Pleikys continues; "The data from the archive were found by a long-time Ministry employee, Mr Anicetas Stelingis, who was responsible for the operation of the jamming transmitters. During one conversation a secret came to light about a long time mystery regarding the Soviet "U" channel marker. I was able to monitor the work of this marker at these frequencies:

3635.5, 4774.5, 6244.5, 6862.5, 6984.5, 7422.5, 7676.5, 8135.5, 8630.5,

8641.5, 9056.5, 9243.5, 9313.5, 10133.5, 10214.5, 10230.5, 12186.5.

The "U" marker disappeared from the air-waves in the spring of 1990. I have



recorded an occasion when the "U" marker ran on 13 frequencies simultaneously. My colleague, A. Stelingis, confirmed that these channels were continuously monitored at the jamming correction and control posts. The "U" channels were used to transmit orders to the jammers - most likely to issue jamming frequency and time schedules. It must have been that "U" channels were used as backup instead of the Teletype link to Moscow. (It is also believable that the "U" marker on the short-wave bands was also used for civil defence and other purposes). It is also worthwhile to note that when the USSR ceased its jamming on 30 November 1988, the "U" marker transmitters continued to operate for almost another 18 months. This would indicate that throughout most of the USSR the jamming system continued in a state of readiness should the circumstances change again.

Ed note: Along with the numerous 'K' markers, these 'U' markers were unique among SLT's as they all used continuous carrier FSK (with a 1kHz shift the purpose of the 'K' markers remains unknown).

After reading the book I wondered if the jamming transmitters could also be used for sending number station messages, so I wrote to the author and here is his reply:

Thank you very much for your message of and for possibility to read your study on number station. It is a serious and deep investigation about these exotic HF outlets, which are a little bit archaic but nevertheless very convenient to reach existing field agents with one-way messages. Unfortunately, it is difficult to answer your question whether Soviet jamming facilities were used for numbers transmissions, or not. The only thing I know is that HF jamming, fixed communications and broadcasting services in the former USSR sometimes shared the same sites.

Maybe some of these stations carried also numbers transmissions. Why not? I've read, that at least Soviet Military Intelligence Service, known as GRU, had (or still has) its own HF radio centre at Vatutinky village in the Moscow area. Most likely, FSK (Russian Counter-Intelligence Service), SVR (Foreign Intelligence Service, and FAPSI (an analogue of the American NSA) also have their own transmitting/sigint/comint stations. I agree, that they probably use Russian embassies to transmit coded HF messages, but in that case a transmitter power should not exceed 5kW, while specially installed inside country transmitting bases can use also 10 to 80 kW units with high gain rhombic, vertical curtain or log-periodic antennas.

The book 'Jamming' is 164 pages and is written in English by Rimanantas Pleikys, former Minister of Communications of the Republic of Lithuania. He is a member of Parliament. For more information: < <http://www.is.lt/ratekona/jamming.htm>. >  
The book is available for \$14.95 (plus \$2.00 for airmail delivery) from Mr Sigitas Zilionis, P.d. 985, LT-2300 Vilnius, Lithuania. E-mail: < dx@is.lt >  
Please mention ENIGMA when ordering.



### NUMBER STATION FEATURES ON NATIONAL RADIO

When I was listening to Danny Baker and Danny Kelly one Saturday evening on their regular programme on Talk Radio, (a British commercial station) I heard Danny Baker describe the time he was tuning around on a shortwave radio one night and came across a strange tune repeating over and over, which was probably only an interval signal. However, I sent Danny Kelly a tape of various number stations on Saturday 21 November at 17.30 their programme was started by the Stasi gong station (G3), not heard on air for 9 years.

They had manipulated the tape so that the German female voice was heard at the same time as the gongs, which did not happen with the true broadcasts. Danny Baker didn't know what it was at first, he said to Kelly that he thought it was Tibetan chimes, but Kelly explained that it was spies sending instructions to agents in other countries. They then went onto talk about spies in a football related context, as their show is supposed to be about soccer. I couldn't help thinking what their army of listeners thought when all they heard for the first minute were the Stasi gongs !

### THE ORIGIN OF NUMBER BROADCASTS?

The following was received from a US Radio Amateur KC7VDG, which is yet another explanation for the existence of Number Stations: "I spoke to my brother-in-law, who was in East Germany in the 1980s. He was in charge of guarding bunkers that housed nuclear devices. I mentioned the numbers broadcasts to him, and even played him one I had on tape. He was not surprised I could pick them up. I asked him if he knew the origin of them, and this is what he said: I used to play messages like that, we had a big console in a building next to the nuclear bunker. We had a big book, and there were schedules, and charts that told us what frequency and tape to put in the machine'. When I told him about the suspected origins he replied: 'No, they were just "SITREPS", situation reports, and besides we had the tapes weeks to months ahead of time, so nobody could ever have a message set up in them so far ahead of time. They were just to say "here I am and I'm doing my job and playing the tapes", basically just following schedules, sort of a way to keep track, if we missed one they would send someone out to check on us'. I asked him if he ever missed one or if the machine broke and he couldn't play one. He replied, and this is word for word, 'The piece of \*\*\*\* was broken most of the time, I spent most of my time fixing it so I could play the tapes on schedule'. He described the room as a small wooden building about 10x20 feet, with circuit breaker panel on one side and solid electronic devices (sic) in racks on the other. Seems like one of the origins of these broadcasts is solved!" Or not as the case may be.

**Ed Note:** We are very interested in these comments and would welcome feedback. The article may be pure fantasy or perhaps carries an element of truth; our own experience of stations from the former GDR was that they ran a very efficient operation. Perhaps the transmissions referred to above were not number stations as we know them but some other type of transmission.

### TUNING AROUND

When I was listening to 3840 kHz at 21.20 one Sunday waiting for the 3-Note Oddity (G4) to repeat the 21.05 message a few odd things happened. At 21.25 the German Female of G4 said "00030" twice and minute late "05205". At 21.27 the



E10) Female came up and proclaimed "YHF2". Then G4 came back with "09248" followed by a few fragmented figures until 21.30 when E10 came back on air with "YHF2" which then left the air at 21.35, just in time for the 3 notes to start up. When the transmission got under way, the earlier groups were the second, sixth, tenth and eleventh groups of the message. I suppose the operator was a bit bored and was playing around with the tape as it wasn't being checked as it rewound, rather it was being fast forwarded and played for a second and so on until it was fully rewound whilst E10 was on air.

Ed note: - This particular G4 message was highly significant in that its non-random groups showed entirely different characteristics to those of all known previous messages. Incidentally, G4's early sending of isolated groups is not uncommon.

E17) Tom in the USA recently logged an all-time record group count beating the previous record of 401 with a staggering 543 ! According to Tom, the carrier came on the air on 31 October at 01.00 UTC on 6865 kHz. At 01.30 the English language female of E17 started the call 936 followed by the preamble 210, 210, 543, 543 and then into 5F groups. The transmission finally ended at 03.07. The whole message was repeated again the next night at the same time and on the same frequency and also again at 03.30 on 5817 kHz. One can imagine the mammoth task of decoding such a huge message.

#### GULF WAR & BBC

In reply to Dave (Shropshire) about the QSL card I received for reception of BBC World Service programming via the feeder on 6840 kHz in 1990, it was indeed from SSVC, who were sending programmes out to the Persian Gulf area to the British troops during the build up to the Gulf War. The programmes were straight World Service output broadcast from Cyprus; the QSL card can be viewed on my web site: < <http://www.btinternet.com/~simon.mason> >

#### NEW NUMBERS STATION CD-ROM

U.S. Numbers monitor Chris Smolinski has compiled a CD-ROM completely devoted to number stations. I have not received a sample copy at the time of writing, but Chris has kindly offered to send me one and I will review it in time for the next issue of ENIGMA. The Numbers Racket CD-ROM is organised as a web site, so it is viewable by any computer with a CD-ROM drive and modern web browser, including Macintosh and Windows. Details can be obtained at the following internet address;

< <http://www.blackcatsystems.com/numbers/cdrom.html> >

Full details can also be obtained by contacting Chris Smolinski at "The Numbers Racket" Chris Smolinski, 4708, Trail Court, Westminster, MD 21158. U.S.A.

Chris also informs me that the e-mail address for his Spy Centre is now;  
< <http://www.blackcatsystems.com/numbers> >

Until next time my best wishes to you all. Regard, *Simon Mason.*



## HF RADIO STATIONS IN U.K.

The following information has been gathered over many years from all kinds of diverse sources. Very little publicly available information exists concerning the locations and operating agencies of British HF sites. Britain is now certainly one of the most secretive of all European countries as far as this matter (and many others) is concerned.

Much of the information below dates back to Cold War days (1970s/80s) and the present status of many sites is not known. Site visits would easily rectify this. Several have closed, while others have changed role or operating agency, while probably the majority remain much the same. In a short article such as this, details such as the history and composition of such sites, callsigns & transmissions noted etc. cannot be included, however, should anyone wish for more information please get in touch. Many visits have been made over the years, and photos may also be available. Genuine enquiries only please, on a "need to know" basis.

Unless otherwise stated all these are "large" sites i.e. with aerial farms covering 50 acres at least - often many times this - up to 1000ac or more. As far as possible, official site names are given, some of which are too small to be named on the British 1:50000 scale O.S. maps. We can supply map references on request for your particular area, and any help you may need on "what to look out for when you get there" etc.

### BT - formerly Post Office (excluding Coastal Radio)

T Criggion (also VLF & LF)  
T Rugby (also VLF & LF)  
T Lanivet  
T Ongar  
T Leafield  
R Bearley  
(R Baldock - passed to Army - now DTI DF/Monitoring)  
R Cooling Marshes (DF almost certainly closed)  
R Dorchester  
R Bridgewater  
R Somerton  
T Portishead (small) (Control centre)  
R Burnham-on-Sea (Small) (Control)

### DCN - Defence Comms. Network (run by RAF [& now private agency] for all three services)

HQ - Rudloe Manor (no HF aerials but controls HF sites)  
HQ - RAF Stanbridge (small HF area gone but still RAF site)  
T - RAF Greatworth (closed c1991) moved to:  
T - RAF Chelveston (new - on ex USAF base)  
T - RAF Edlesborough



RAF Oakhangar (SatCom - no HF)  
T - RAF Milltown  
R - RAF/NATO MF/HF Balado Bridge (includes SatCom)  
R - RAF Bampton Castle (& control centre - moved from Stanbridge?)  
HQ - RAF Boddington (no HF but handles military SIGINT traffic for GCHQ)

### RAF

High Wycombe - HQ (small - once a couple of rhombics here)  
Chenies - small (formerly HF/VHF/UHF - now met. radar?)  
R/T - RAF/RN Pitraevie HQ (small)  
? - Lethans Muir (small HF - closed 1981?)  
R - Upavon - (small - HF/VHF/UHF)  
T - Bulford - (small HF/VHF/UHF)  
T - Shilbottle - (small HF/VHF/UHF for Boulmer UKADGE/SAR)  
? - Garths Ness  
? - Aird Uig HF  
(several others like the above examples exist)  
Cadets (CCF/ACF) - low power HF/VHF/UHF - everywhere!

### Royal Navy

T/R - Admiralty Whitehall - (HQ, single HF dipole)  
T/R - Northwood - HQ (2 rhombics once - may still be there)  
T - Inskip (also LF) (operated by SERCO) Main Tx site.  
T? - Inverkip (small - 2 rhombics)  
T - Horsea Is (VLF - closed)  
T - Humberston/New Waltham (HF/LF) (probably closed)  
R? - Caistor (probably Rx site for above - closed?)  
T - RN/NATO Crimond (also LF)  
R - Forest Moor (rebuilt c1992) Main Rx site with DF.  
R - Meon (HMS Mercury - rumoured to have closed)  
R/T/HQ - Southwick complex (small)  
R/T/HQ - Mountbatten (small)  
T - Beacon Hill/Chattendon (small? - probably closed)  
T - St Eval (RAF?)  
? - Knock Hill (small) serves Pitraevie  
RNR & Sea cadets - low power HF/VHF/UHF - everywhere!

### US Forces

T - USN Forres (also LF)  
R - USN W Murkle  
T/R - USCG Scatsta (small - Loran-C net control)  
T - ~~Benbratagh~~ (single LF transmitter - closed)  
T - "RAF" Barford St John (run by USAF - carries CIA/diplo)  
R - "RAF" Croughton (also control centre for USAF/CIA/diplo)  
"RAF" Oakhangar (US Compound - Sat only, intell/comms)  
T - Londonderry (Clooney Park) - closed (USN)



## Foreign Office/MI6

T - Gawcott HMGCC (closed & aerials dismantled 1990s, new high - security central compound)  
T - Creslow HMGCC (rebuilt 1993 yet apparently closed)  
R - Hanslope Park - HQ HMGCC (rebuilt 1993 - large HF site dismantled. A few new HF aerials on site, also Sat)  
R - Poundon HMGCC (rebuilt 1993 yet apparently closed!)  
? - Stoke Hammond (DWS or DCN?) (closed 1970s)  
? - Bletchley Park (DWS - in 1970s HF rhombic) - now museum  
T - Crowborough (HF transmitters shared with BBC - closed)  
T - Rendcomb (Black Propaganda broadcast site)  
T - Potsgrove (as above - both WW II - not used since)  
(many more wartime sites)  
T - Wooferton (BBC/VOA - run by Merlin)  
T - Daventry (BBC) - closed but "reserve" LF (198kHz) planned  
T - Rampisham (BBC - run by Merlin)  
T - Skelton (two sites) (BBC - run by Merlin)  
T - Orfordness MF (BBC - on site of USAF/NSA OTHR - replaced Crowborough MF 1980s)

## SIGINT - all R

Oakley - GCHQ (no HF)  
Benhall - GCHQ (very little HF)  
Brora - CSO  
Bower - CSO (now "auroral research" - SABRE - like HAARP?)  
Hawklaw - CSO  
Gillnahirk - CSO (closed)  
Comber - CSO (closed) (Island Hill)  
Irtton Moor/Scarborough - CSO (largely rebuilt 1990s)  
Cheadle - CSO  
Blakehill - GCHQ research site - recently closed  
Culmhead - CSO (recently largely rebuilt)  
Bude/Morwenstow - "CSOS" actually NSA, Sat SIGINT only  
Wincombe - CSO (later NSA? Closed?)  
Flowerdown - CSO (closed 1980s - now army base)  
Ft Bridgewoods - CSO (closed)  
Goonhavern - CSO (probably closed) historical info needed!  
Beaumanor/Garret's Hey - Army SIGINT  
Digby - RAF SIGINT  
(many more wartime sites long closed)

(CSO traffic handlers were/are also based at various military locations such as Shornecliffe, Redbrae & Chilwell but no HF signs, probably Switching Centres/interception of military line comms.)  
[GCHQ London Station - Palmer St. - (embassy bugging etc.)



Broad Sanctuary - bugging of govt. officers, MPs? - no HF]

### Others

T - Anthorn (NATO vast VLF site - no HF)  
R - Kirknewton (US army SIGINT, Moscow/Wash Hotline - closed)  
R - "RAF" Menwith Hill - NSA HF & Sat SIGINT  
Winkfield - mainly Sat - "research", NSA/CIA links  
Lasham - DERA/M.O. Sat only (to move to MoD West Freugh)  
"RAF" Feltwell - NSA/USAF Sat only (Intelligence)  
"RAF" Molesworth - USAF Sat only (Intelligence)  
R - Edzell - USN SIGINT (Sat & HF) (closed?)  
R - Chicksands - USAF SIGINT (now National Security Centre/DISC - includes "Special Comms" (HF) and "psyops" sections. Also Special Services training & firing range)  
R - Crowsley Park - receiving site for BBCMS at Caversham Park  
R - Lawrencekirk - Stay-Behind Networks comms  
T - Montreathmont Moor - Stay-Behind Networks comms  
? - Battery Hill - very small site (HF comms with planes used for Porton Down particle dispersion research?)  
R - Birdlip - formerly large CAA HF site, now VHF/UHF only  
T - Winstone - as above  
T/R - Pailton (small, CAA monitoring station HF/VHF/UHF)  
T/R - Ditton Park (DSIR Ionospheric sounding - closed? chirpsounders now at many HF Tx sites)  
T/R - Kingston Blount (US/NATO Iono-scatter - long gone)  
? - Prawle Point (operator not known - closed?)  
? - Pirbright (Army - closed)  
T/R - Blandford Camp (Army School of Signals)  
T/R - West Wickham (Interpol) *Small*  
? - Connel (joint services & US) assesses VLF, LF & HF links (*Small*)  
T - Ledaig (small, one of several MF Hi-fix 6 sites)  
All 25 Sub-Regional HQs [nuclear bunkers] had "fall-back" HF facilities - Pye 125T with long-wire aerials.  
Many secret BBC Cold War WTBS MF transmitters sites.  
Coastguard & Customs also use HF.  
All eight Upper Air Stations have HF (& some, VLF) receivers.  
All DTI Regional offices have HF monitoring facilities.

Sites marked closed are not necessarily all abandoned, and may be reactivated, taken over for other purposes etc. Until ploughed up or built over, they all need watching.

We hope that this very brief summary proves useful in inspiring others to continue research. (It includes a few other interesting snippets - which could be multiplied many times over). As far as Numbers stations are concerned, only Creslow, Gawcott & Barford St John have been identified positively, but this was way back in the 70s. Likely sites for covert comms. nowadays could even include privately operated sites handling govt comms. such as SERCO-run Inskip, for example. As FO sites seem to



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be closing, despite many millions spent on recent rebuilds, this move implies that: a) satellite comms. now predominate, and b) fall-back HF comms. which must exist, have been absorbed by other sites, not traditionally associated with the old DWS (Diplomatic Wireless Service). The most likely candidate being DCN, however, private agencies may have a hand in this.

With numerous large BT sites, combined with a drastic decline in HF point-to-point comms. just what are all these receivers and transmitters doing? Bearley alone has 60 ISB receivers. Even using the standard dual-diversity reception, this means 30 HF freqs. potentially being monitored.

We know pretty well where MI6's agent-running transmissions (E3/4) are transmitted from - certainly no longer from the country of their origin. The CIA, the only other strong contender of this type for transmitting from British soil, no longer seems to host Cynthia here - she lives near Langen, among other places. In a way, these Stations, like all the other Number Stations are quite blatant in what they do, in that they send routine traffic. Far more covert are the live Morse, burst etc. communications which take place between agents/"Special Forces"/shady exile groups etc. and their operators, e.g. MI6. These are real-time, erratic and unpredictable - reflecting the very nature of their operations. Here immediate responses/instructions are involved, and professional radio operators employed.

Their controllers must transmit from somewhere, and not all of these operations rely on portable satellite comms. although most will now do. There must always be a reserve HF capability and exercises must, and do, take place to ensure readiness. The exposure of Gladio in the early 90s opened up a whole can of worms, exposing in turn, the numerous other so-called Stay-Behind Networks. Unlike the rest, British Stay Behind is still shrouded in secrecy, however, we can reliably inform readers that its exercises in Europe, throughout the Cold War at least, were controlled by HF Morse transmissions from Montreatmont Moor, probably Britain's most covert comms site, hidden in the middle of a forest. Such exercises still go on - the "Special Forces" (i.e. SAS, MI6 etc) comms. section at DISC isn't there for nothing!

The mysterious "Kilowatt Network", with a name like that surely must run transmitters, and almost certainly does, but where are they? They must be somewhere. But first of all we must identify all the possible sites, determine which are transmitting sites, and concentrate on those. The trend in using private agencies to operate sites handling govt. comms., (paralleled in Home Defence, nuclear monitoring, police, fire comms. etc. - once all under the British Home Office) makes our work more daunting, but not impossible.



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### Amendments to Booklet (Part 1)

Many thanks to Hans-Friedrich for pointing out various errors which crept in to the Booklet. Here they are, with a few comments:-

p. 19 E23 & M4 start at h-03 (h+57) not as stated, although when E23 first began it continued in the tradition of G2/M4 for a while, starting on the hour.

M10 also has a few h+45 spots (rare but one at present)

E11 also starts at h+30

pp. 26/27/30 M18, M21, M42, MX, S13, S14 & S28 have now all been allocated into a miscellaneous Russian subfamily Ic (as on page 24)

p. 27 M51 hasn't 100 letters but 100 five-letter groups - a silly mistake!

A few other "corrections" were suggested, and here are our comments:-

M2 never started at h+55, always h+00, and never used the NNN call. This was used only by the voice transmissions of Family IV. M2 used 3fig schedule numbers in its calls.

S8 according to all our logs began at h+00, and also h+30 (0630). M27 also started at h+10.

We'd like to know more of S21's h+15 spots. Confusing and conflicting Saturday morning schedules were reported last year. 0815 & 0915 are possibilities but not confirmed.

We certainly don't know of any M12 h+40/h+50/h+60 sequence. If correct this only leaves time for null message transmissions, which only send twice anyway, not three times.

You'll find P7X listed in future - as M77. We omitted this one as it was once considered to be some kind of military tactical station. However, this now seems most unlikely.

All comments, queries, suggestions, corrections for the Booklet are always very welcome. We intend to publish amendments and additions whenever necessary.

### Additions to Control List

#1b nS7C 4fig, non-random

#1c nS30 formerly XT (the Pip)

#0 M76 4char bogus c/s, pseudo 2-way

#0 M77 (P7X)

Delete M40A & M53. (M53 & M40A were duplicated, and are the same as M40)



About this feature. In part one (issue 14) we examined the history of the S.O.U.D. In part two we will be examining S.O.U.D.'s activities on Shortwave, its links with member stations and its format, traffic, modes and mistakes. In addition we will bring you up to date with developments. The information carried in part two is taken from an article concerning Russian/Soviet diplomatic, intelligence and military communications on HF, researched by Ary Boender and published by Worldwide Utility News Club. WUN is not associated with any company or group and does not require dues. For further information see the club webpage at - <http://www.gem.net/~berri/wun>

## S.O.U.D.

PART TWO - We left S.O.U.D. with the 3rd conference scheduled to take place in Budapest in 1990. It is not known if this meeting was ever held, or perhaps due to events it was switched to Moscow? The MfS was transferred to the AfNS (Amt für Nationale Sicherheit - Bureau for National Security) in late 1989. Their last entry in S.O.U.D. was December 21st 1989. At this time it was considered important to destroy material about S.O.U.D. It later became clear that the MfS had not given all its information over to the S.O.U.D. system for fear of leaks. They had a complete list of those working for the BND which they had obtained from Gabriele Gast.

Later we will come back to developments between 1990 and the present but for now we will look at the information gathered through radio monitoring.

► BACKGROUND - As we mentioned above much of the information which follows is extracted from a much larger article concerning Russian/Soviet diplomatic, intelligence and military communications on HF. We have endeavoured to focus on S.O.U.D. and to concentrate on those areas of interest to ENIGMA readers.

► RADIO TRAFFIC - Radio transmissions from what was later to be identified as S.O.U.D. were first monitored in the late 1970s when Morse was in use at circa. 32 WPM. In the mid-1980s these transmissions changed to 50bd. RTTY. Two networks operated, one in Europe and the other in the Americas. A distinction between S.O.U.D. transmission and the wide variety of modes used for diplomatic and military traffic became evident. Perhaps the most striking was the use of Baudot telegraphy as some of the member countries simply did not have the finances to obtain, or technical knowledge to operate, sophisticated equipment and with so many nations involved it was of course a question of standardisation. This would also explain the worldwide appearance of this network. Monitors also noted operator chat with the question "ruskih registrow ok?" and the use of non Russian words such as "bereit", "Si". A typical diplomatic characteristic is the use of different modes, depending on the level of flexibility and security you want on a specific link. S.O.U.D. did not have these luxuries.

From monitoring alone it is very difficult to be certain what kind of traffic is been sent since all messages basically look the same, but some interesting facts have emerged from intensive monitoring of the networks.

The stations transmit a 3 figure callsign such as KUL, RAU or RKD. The master station in Europe was 'RCF'. Several frequency guides listed RCF as Ministry of Foreign Affairs in Moscow.



DF information indicated that Moscow was indeed correct. As far as we know every station had a callsign of its own. However the master station seemed to use more than one callsign. VNB, KKK and RGA, which were believed to be transmitting from the same location are most probably callsigns of the master station. It appears that the master receives a different callsign on each specific two-way link. The master station transmits crypted messages (5-letter or 5-figure groups) to the other stations. There were fixed schedules for a couple of stations while others were reported less frequently. During the time that RCF was still in place, a traffic list system was used, later each link had one or two fixed schedules on an assigned frequency pair. Auto broadcasts were also sent by some stations and possibly consisted of circulars or routine traffic sent to the specific network. These were transmitted blind and therefore repeated throughout the day on a number of frequencies. The list of callsigns and frequencies monitored over the years runs to several pages and ranges from 4491 to 21865 khz.

Like number stations some clues can be gathered from the traffic. Each message starts with a preamble consisting of 5 groups, followed by the message itself.

Callup - 46464646464646 KUL KUL KUL KUL 1/226  
(46 is standard Baudot idling signal)  
Preamble - 11177 00142 23687 05012 01109

1st group: possibly a message identifier, stating what type/priority the message is. 11144, 11166, 11177 have all been noted. The most common are 11177 and 11199. The latter is used for confirmation purposes.

2nd group: the link identifier, each link had its own ID, except for stations which had a two-way link, in that case both stations had the same ID.

3rd group: the crypto factor.

4th group: the first two digits are the date and the last three the message number.

5th group: the first four digits represent the number of groups in the message + 1. [The extra group is most likely the crypto-factor (3rd group of the preamble).] The last digit is either '1' or a '9'.

There were several other formats. A confirmation of reception (QSL) message may be sent on a different frequency and even a different day to that of the original message. The first group of the preamble was always 11199. The messages always seem to start with 55555 followed by 77011, while the last group represented the QSLed messages. A typical QSL preamble and message looks like this:

11199 00142 00000 18010 00069  
55555 77011 00089 00090 00091



Five different cipher systems have been noted:

- 1) The 3rd group of the preamble is 00000 and the message consists of 5 letter groups.
- 2) The 3rd group of the preamble consists of random digits and the message consists of 5 letter groups.
- 3) The 3rd group of the preamble consists of random digits and the message consists of 5 figure groups and the last group is not 11111.
- 4) The 3rd group of the preamble is 00000 and the message consists of 5 figure groups and the last group is 11111.
- 5) The 3rd group of the preamble is 00000 and the message consists of 5 figure groups and the last group is not 11111.

Another oddity are QSF messages: 1/1, 2/1, 3/1, 7/1, 8/1, 9/1 QSF3. The official meaning of the QSF-code is "I have effected rescue and am proceeding to base". We can safely assume that the special network-QSF's have nothing to do with the official meaning of the code. Intensive monitoring of the stations revealed that QSF2 means a normal schedule, QSF4 no schedule and QSF3 remains unknown but could indicate an alternative schedule will be used. On the occasion that QSF1 was sent no message followed.

There was a significant feature of the 5-letter traffic. The last group of every message was a simple substitution which indicated the date the message was composed and the group count which was always 3 less than the group count given in the preamble. Substitution:

O I U Z T R E W A P For example: UEORW

0 1 2 3 4 5 6 7 8 9

\* 2 6 0 5 7 26th of month, 57 groups.

(\* The same as M1)

► LINKS WITH NUMBER STATIONS - The area between 14747 and 14787 kHz appears to be an area in which tests are carried out. Virtually every mode and service has been noted in this part of the band. One monitor reports - "I tuned to this frequency (14747), the marker tone was present but I thought I heard a voice on it. I switched to AM mode and to my surprise, there was a mechanical male voice counting in English: one, one, one, two, two, two, three, three, three, four on up through nine. There was much clicking, buzzing and occasional distortion - as if the operator was adjusting the audio output of the numbers generator. Later a male voice was heard, but now in Spanish: "uno, uno, uno" Then an English female voice "five, two, nine; five, two, nine. Then a series of clicks, and a long period of (20 minutes) of heavy 60 Hz hum. Then back to male English repeating "one, two, three." and underneath the male voice was the female voice repeating the "five, two nine" routine again.



A further link between this organisation and Number stations was also noted on 14787 kHz. A steady carrier was noted for about 5 minutes.

Then FSK wvvv's. The 75bd 4646464646's. Then 100bd 46464646's followed by a carrier. The 300.05 bd data. Then about 30 minutes of adjusting voice generation equipment again in both Spanish and English. Then on to CW "989 20" repeated then on to 20 group text with lots of 12345's in it (obviously test traffic). Then the keying speed is increased to 45 WPM and more test CW. Ending with 989 '00000'.  
(\*Similar tests noted by M50)

► MISTAKES - Rather like their Number station colleagues, mistakes are few and far between. On one occasion, at the moment the WFO callup was due to commence, a numbers tape came up. After a few seconds it was terminated and replaced by the WFO callup tape. On another occasion the WYN callup tape was replaced by PSN tape. After a few repetitions of the '46464646 PSN PSN' lines the correct WYN callup tape was transmitted.

► 1990 - 1998 UPDATE - SOUD was an alliance of the intelligence agencies of the communist bloc and its databases were accessible by all members of the former. The members of SOUD were the Soviet Union, Bulgaria, Hungary, Poland, Czechoslovakia, Mongolia, Cuba, East Germany and Vietnam. After the collapse of the Soviet Union SOUD's days were numbered. One of the main computer centres was in East Germany, and after East and West reunited, the Stasi archives were soon in the hands of the AfNS (Amt für Nationale Sicherheit - Bureau for National Security). Nevertheless, it is believed that SOUD stayed in operation for at least a couple of years but as a Russian enterprise, perhaps with the help of a few friendly nations like Romania, Vietnam and Cuba. As you all know, the KGB does not exist anymore but most of its former directorates are still alive and kicking in one form or another. While KGB (Committee of State Security) and its military counterpart GRU controlled nearly the complete intelligence system in the Cold War days, a number of the new agencies now come under various ministries. A large part of the state security tasks are now handled by the FSB (formerly FSK and successor to the KGB).

The Federal Agency for Government Communications and Information (FAPSI), comprises the former KGB 8th Chief Directorate and 16th Directorate, and controls the country's communications networks and runs most electronic intelligence functions in Russia. According to a decree dated April 3, 1995, FAPSI is empowered to monitor and register all electronic financial and securities transactions in Russia, and to monitor other electronic communications, including private Internet access.

The SVR is the foreign intelligence service who was known as CSR until December 1991 and became part of the Ministry of Security (MB) under the new name 'SVR'. MB was in existence from 1991 to 1993 and was the initial successor to the KGB. In December 1993, SVR became an independent agency. The SVR has offices in Russian embassies, consulates and trade establishments throughout the world.

The Russian Federal Security Service (FSB), is responsible for internal Russian law and order and counter-intelligence activities.



Originally the Federal Counter-intelligence Service (FSK), the FSB was established in 1991 by president Boris Yeltsin as one of the successors to the KGB.

The FSK was subordinate to the short-lived MB but became an independent agency in 1993 under the new name 'FBS'.

The Russian Presidential Security Service (PSB), formerly the 9th Chief Directorate of the KGB, was established as an independent government agency in 1993. In addition to providing security for Russian top officials and the guards for the Kremlin, the PSB supervises top-level government communications, operates and protects underground command centres, maintains the special underground train system that connects key government facilities in the Moscow area, and protects other strategic facilities, and executive aircraft and special trains. Leadership communications are carried out from the trains when a leader travels by train. The train was popular with president Brezhnev, who never flew except when he absolutely had to and then only outside the borders - and always used these trains. The trains are mostly used for their strategic rocket forces, a lot of which is rail mounted. FAPSI is in fact the agency who is responsible for state communications and signals security. The agency was also one of the former KGB directorates, handling Federal communications and was responsible for the encryption of the government's messages; tasks they still carry out today. The agency operates an HF/satellite network, for both SIGINT purposes and transmission of government and intelligence traffic. Like the KGB in the Cold War days, FAPSI works closely with the GRU, Russia's military intelligence organisation. They even share the SIGINT facilities around the world, many of them located at embassies and consulates. In 1993 Russia closed a contract with Vietnam to ensure the continuing use of the SIGINT facilities in Cam Ranh Bay. In 1994 the Russians came to an agreement with the Latvian government, which gives them the right to use the SIGINT station in Skrunda. Russia's largest SIGINT facility abroad is the one at Lourdes in Cuba. Many of the RTTY and Numbers transmissions heard in North America originate from various sites in Cuba. There is also a SIGINT/TX site in Nicaragua.

These dramatic changes both in control and administration have left some questions about the Soud system which do not have definitive answers. It would appear that most of the traffic sent by the network is now diplomatic material and SVR traffic, transmitted by FAPSI. Reports also indicate that a new database is being built up with the cooperation of CIS intelligence services in Moscow.

According to a report filed in November 1996 the security chiefs of the countries of the former Soviet Union (FSU) met 11 September 1996 in the Brest region of Belarus. The Federal Security (FSB) is organising the creation of a joint CIS data bank on organised crime. The system comprises two units. One is open information accessible to all interested CIS special services. The second unit consists of operational information, where the CIS special service that provides the data can impose restrictions on its dissemination to third parties. The joint data bank is being constructed using an imported information system. The information includes that related to combating organised crime, drug trafficking, arms smuggling, and the nonproliferation of nuclear components. In certain situations the FBS will also make the data available to all interested agencies, including special services in the West and NATO countries. Hopefully they have learned from previous mistakes?



## RULE NO. 1 - DON'T GET CAUGHT

BACKGROUND Cyprus, divided since a Turkish invasion in 1974 after a brief Greek-inspired coup, is due to take delivery of S-300 surface-to-air missiles from Russia at an as yet unspecified date. Turkey has vowed to prevent their deployment. Relations between Cyprus and Israel have been soured prompting suspicions that the Jewish state may be sharing intelligence with Turkey, heightening spy-mania in Cyprus. Israel is particularly anxious to establish whether the dual radar that will control the networks are in place. This information is vital to Turkey who has threatened to bomb the air-defence system the moment it is fully installed. Some observers believe that the government of Cyprus is looking for a way to avoid conflict with Turkey. There is a suggestion that the system will be sited in Crete, (this now seems to be the preferred option) where its ability to track military jets taking off from the Turkish mainland would pose less of a challenge to Ankara. Some observers in Cyprus speculate that the entire project will soon be abandoned, although this is officially denied. All of this is of great concern to Israel, whose air-force cooperates with Turkey under the military alliance between the two countries.

It is against this background that we bring you an interesting story of international intrigue. Just who is cooperating with whom ?

SAT NOV 7th Two men, Udi Hargov, 37 and Igal Damary, 49, are arrested in Cyprus by local police after they were observed acting in a suspicious fashion near a sensitive military installation. The two "teachers" denied the allegations against them and were remanded in custody for eight days. It was also reported the two rented an apartment, the same one they were in two months ago, for two weeks, even though they were only present for a day. Local police added that equipment used for espionage was found in their apartment, in the southern coastal village of Zygi, including cameras, lenses, lap-top computer, radio scanners and more. It was also reported that the two men visited Cyprus between Oct 15 and Oct 22, coinciding with a large Greek-Cypriot exercise and had later returned to the Island. Israel Radio also reported that the two were possibly spying for Turkey. Israeli-Cypriot bilateral ties are excellent, underscored by an official visit to the Island by Israeli President Ezer Weizman only that week.

MON NOV 9th Ezer Weizman of Israel was said to be "apoplectic" on hearing of the arrests, he had just returned from Cyprus having assured his hosts that the Israeli-Turkish military contacts were not directed against the country. Gad Shomron, a former Mossad agent who writes on intelligence matters, said, "Cyprus has always been a very interesting theatre of operations; it is a place that treats tourists well and it is easy to work there. If they really are Mossad men, then it shows the operational units seem not to take too seriously Rule No 1 - don't get caught".

According to the newspaper Maariv, the owner of the restaurant in Zygi knew they were spies because they hid themselves away and never showed up in his establishment. He said: "My fish is excellent, and every stranger who turns up in



the village tries my restaurant".

Commentators said the arrest of the two men was aimed at sending a signal to Israel that it could no longer have a free hand in Cyprus, which is so packed with spies that it is known as the "Berlin of the Middle East". Israeli newspapers said Mossad used Cyprus to keep an eye on Iranian subversion in the region.

Sources said tourist maps were also found in their possession, with marks on three sites where Cyprus has stationed Exocet missiles, the French made sea-to-sea missiles. Although Cyprus police say the two Israelis carried passports with the names Udi Hargov and Igal Damary, Israel's population registry lists no one with the name Udi Hargov and just one person with the name Igal Damary.

THU NOV 12th Israel confirmed in a secret meeting that the two Israelis arrested in Cyprus were indeed Mossad agents - suggestions that they were spying for Turkey were totally false. The two were reported to be acting as lookouts and were responsible for guarding a secret meeting of Mossad which was taking place nearby. The two were supposed to be monitoring police frequencies and ensuring that no patrol cars approached the area. Mossad officials blamed their colleagues for preparing the false passport for "Damary" since the papers apparently contained the personal details of an actual Israeli by that name. The "Hargov" passport was entirely false.

SUN NOV 15th More revelations followed in a number of press reports. The Cyprus authorities say the two detainees had visited Cyprus six times over the past two years, travelling under various identities and posing as holidaymakers. On at least one occasion their phoney Israeli passports were subject to close scrutiny by the Cypriot authorities. Far from blending smoothly into the tourist landscape, the suspected agents avoided the beaches, bars and restaurants, rarely venturing outside their modest accommodation. As a consequence, both stood out for their pallor among the suntans. Their preference in the blazing heat for wearing plain, long-sleeved shirts and slacks - described by one Israeli journalist in Zygi as "Mossad's unofficial uniform" - also attracted curious attention. The two were already under surveillance by Cypriot intelligence. Panikos Christodoulides proprietor of the village taverna in Zygi said: "The police had already asked me to tip them off if they showed up again. My intuition told me that they were out to harm my country".

According to other reports the two suspects made several phone calls by portable phone, one to a specific intelligence service based in Tel Aviv. The mobile phones were registered in Britain and Holland and one had recently received a call from London. Scotland Yard has been contacted in an attempt to trace phone calls from Britain to the mobile phones carried by the Israelis, in court the CID inspector said police were trying to locate all subscribers who received calls from the two mobile phones, to trace calls from a phone box in Zygi and to discover who made a call from London to one of the phones.

Other equipment found by police in the suspect's flat is described as highly



sophisticated and of a type used in surveillance or espionage. It is said that only three countries - Israel, the US and Britain - actually have such equipment. The lap-top computer was believed to contain software for encoding messages.

An expert from Greece was called in to try and crack encoded material on two discs found in the raid on the flat. In another report it was suggested that two Cypriots fed information about National Guard weapons systems and installations in Limassol and Larnaca not only to Mossad but also to Britain's MI6. Cyprus security forces are now studying the maps, which are believed to locate National Guard installations of which only the top generals have knowledge.

The duo were represented by a single Cypriot lawyer at the first remand hearing in Larnaca. They then progressed to three Cypriot lawyers and a top Israeli lawyer on the case. If the Israeli government is not paying for them then they must have very wealthy families. Israeli lawyer Reuven Bachar works for top Tel Aviv law firm Horowitz which is headed by Amnon Goldenberg, who has acted as the government's 'Mr Fix-it' in secret service affairs. Witnesses said Damary laughed disparagingly when he was told one newspaper described him as the most senior member of Mossad caught since the Israeli intelligence unit was created in 1951. The court ordered they be held for a further five days.

FRI NOV 20th Cyprus formally charged two Israeli nationals with spying for an unnamed foreign country on the military divided eastern Mediterranean Island. The authorities brought charges of spying, conspiracy to spy and possession of banned listening equipment. "With the intent of harming the safety of the interests of the Cyprus Republic, the accused collected information on the defence of the republic and passed this information to a foreign power". Israel has denied the two men were working against Cyprus or for Turkey. But it failed to give any public explanation of what the two men were up to with listening equipment tuned to police radio frequencies in the middle of the night.

Spying carries a maximum sentence upon conviction of 10 years in prison under Cyprus law.

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## IRAQ

Staying in the Middle East it is not only missiles that are flying around. Accusations of spying made by a former UN weapons inspector, Scott Ritter are gaining ground. He claims UN Weapons Inspectors compiled information for the US. According to reports the success of UNSCOM in tracking weapons was recognised by the U.S. and information and systems were taken over by the intelligence services as far back as April 1998. Much of the information was used during operation Desert Fox. A US official warned that public disclosure would compromise US intelligence activities in Iraq. Frustrated by Iraq's ability to evade UN weapons probes, the United States supplied UNSCOM with eavesdropping equipment. British and Israeli intelligence analysts helped the UN inspectors interpret the information. Later the system had been largely automated, allowing the US to listen in on Iraqi communications from a remote location after the UN inspectors left the country before the US-British bombing campaign.

Edited from reports sent by Paul (London) & Rob (Essex) from; Israel/Wire, Daily Telegraph, Ha'aretz Daily, Reuters, Sunday Telegraph, Cyprus Mail, Sunday Times, The Guardian, ABC News, Boston Globe.



**XPH - POLYTONE - NEW REVELATIONS**  
**With full acknowledgements to Valeriano Martin**

► **INTRODUCTION** - Valeriano Martin has recently made a major step forward in decoding XPH - Polytone transmissions. The results of his research are presented below.

► **14 TONES!** - 14 different tones have been identified within the XPH alphabet, with a step of 16 Hz between tones. These have been given an arbitrary letter for each tone.

<u>LETTER</u>	<u>FREQ (approx)</u>	<u>LETTER</u>	<u>FREQ (approx)</u>
A -	305 Hz	H -	417 Hz
B -	321 Hz	I -	433 Hz
C -	337 Hz	J -	449 Hz
D -	353 Hz	K -	465 Hz
E -	369 Hz	L -	481 Hz
F -	385 Hz	M -	497 Hz
G -	401 Hz	N -	513 Hz

EXAMPLE 1) The sample 39 on the CONET CD#2 would be written as follows:  
AGCHADAGCHAGCHAGCHADAGCHAGCHAGCHADAGCHAGCHAGCHADAGCHA  
GCHAGCHADAGCHAGCHAGCHADAGCHAGCHAGCHADA  
 mnmnmnmnmnmnmnmnmnmnaaaaaaaaaa  
 cnegiacncehafihenalhcfnaicckefadjfchacenifaikieda  
 cfihcadiknkacekchadcjneacjneacfinjadgijjacdela  
 fhcfiaknhckaicjkgaienehainjniagldhkacgighadkghja  
 kjikgagenfhaehnjn  
 bnbnbnbnbnbnbnnbnnb

EXAMPLE 2) Track 42 (null message),

AGDCAGDCAGDCACNCAGDCAGDCAGDCACNCAGDCAGDCAGDCACNCA  
 mnmnmnmnmnmnmnmnmnmnaaaaaaaaaa  
 bnbnbnbnbnbnbnnbnnb

Upper case letters represent 1 second duration and lower case 133 msec.  
 The following observations have been made:

- 1: Call up with long tones
- 2: mn (x10) a (x10)
- 3: Message, not present in example 2.
- 4: bn (x10)
- 5: Tones A, B, M and N appear to have a special purposes: B and M do not appear within the message and A is in position 6, 12, 18... this may represent a dummy character used as a group separator. N duplicates the previous tone (i.e. CN = CC). Note that there are no identical consecutive characters.



► CONVERTING THE TONES - The remaining tones C-L most probably represent figures 0 - 9. Therefore we have the following conversion table.

A:	SPACE	H:	5
B:	???	I:	6
C:	0	J:	7
D:	1	K:	8
E:	2	L:	9
F:	3	M:	???
G:	4	N:	Repetition

Making the appropriate substitutions the callup for Example 1. becomes:

405 1 405 405 405 1 405 405 405 1 405 405 405 1 405 405 405 1 405 405 405 1  
405 405 405 1. Example 2. becomes: 410 410 410 000 410 410 410 000 410 410  
410 000

► AGENCY - As long suspected, the format follows that of many Russian transmissions which are part of FAMILY Ib, which includes M12, E7, G7, S7 and V7 transmissions, with their three digit call followed by a single figure. (See important information concerning this matter in our G7 feature in this issue). To confirm the findings, the XPH transmission on FRI morning January 8th 1999 was put to the test. The call sent was GFNAGFNAGFNAEA or 433 433 433 2

The schedule in use was:

11	462 kHz	at	07.00	=4
12	362 kHz	at	07.20	=3
13	362 kHz	at	07.40	=3

The transmission sent two messages, separated by something like cncncacncncaccccc (reception was not too good). The first and second groups in each message were DK and GC, as we would expect:

cdjihacndkh.....(1,110 tones) .....cncncacncncaccccccc  
cjcheacncjl.....( 474 tones) .....bn (x10)  
that is:

01765 00185 (DK 1765) (GC 185) followed by 185 x 5fg. groups  
07052 00079 (DK 7052) (GC 79) followed by 79 x 5fg. groups  
ending bn (x10)

► LOCATION One question we are often asked at ENIGMA is - do these Polytone (XPH) transmissions originate from Russian transmitters? Some of the transmissions are heard in the U.K. with 'thundering signals'. It is probably the case that these are in fact beamed directly at the U.K. using high power, perhaps to your next door neighbour! Indications are that at least some of the XPH's we hear are transmitted from an area West of Smolensk, Russia. This location is well sited for broadcasts towards the U.K. and Western Europe. We would welcome comments.

Ed note: Groups can be counted by ear - by counting the repeated lowest tones ('A' space tones).



## NEWS ROUND UP - REPORTS OF INTEREST

► CANADA - TOP SECRET SPY AGENCY PASSES FIRST INSPECTION - Canada's ultra-secret spy agency is not eavesdropping on the private conversations of Canadian citizens, Quebec's former chief justice says. Claude Bisson has scrupulously monitored the activities of the Communications Security Establishment (CSE), a half-century - old agency that operates so clandestinely its very existence was not publicly acknowledged until 1983. It is Bisson's job to ensure the top-secret wing of the Department of National Defence is not illegally listening to private conversations. In the past the CSE has been accused of spying on Quebec separatists and eavesdropping on such friendly countries as France, Mexico and South Korea. Bisson said the issue of whether Canada spies on friendly nations is an operational matter that has national security implications and is outside his mandate of ensuring the lawfulness of the CSE's activities.

The CSE was established in 1946 and operates out of a nondescript office building in south Ottawa surrounded by a fence topped with barbed wire. There is no name on the generic government address sign on the lawn. Unlike the Canadian Security Intelligence Service (CSIS), the civilian spy-catching agency that is mandated to counter threats to the security of Canada, the CSE's mandate is not rigidly defined by legislation. The CSIS has revealed that among the most vulnerable sectors of the Canadian economy are aerospace, high-tech, bio-technology and communications industries, nuclear power and metallurgy. Agents from approximately 24 countries are known to engage in state-sponsored economic espionage in Canada.

► ISRAEL - ISRAELI SPIES USE AFRICAN BASES - MOSSAD, the Israeli secret service, is operating a string of previously top-secret outposts in the Horn of Africa. They are being used to monitor hostile states, including Sudan, and to service Israeli submarines operating in the area. Israel's most important base in the turbulent region is on the Dahlak Islands in the Red Sea off Eritrea's main port, Massawa which Ethiopian forces recently tried to capture. Israel has established a sophisticated monitoring station there, enabling it to eavesdrop on oil-rich Saudi Arabia and neighbouring Yemen. According to Israeli security experts, the imminent acquisition by the Israeli Navy of three Dolphin class diesel-electric submarines, considered among the most advanced in the world, could by the end of 1999 give Israel a second strike nuclear option, using cruise missiles fired from the sea. If Arab forces succeed in striking the (Israeli) nuclear reactor at Dimona, ground-to-ground missiles and air force bases, Israel could still respond with a cruise missile launch from a submarine. There is also reported to be an Israeli presence on Hanish Island and a base in Eritrea in the Mahal Agar mountains, near Sudan's border. According to reports in the Israeli press Israel is also interested in establishing 'intelligence gathering bases' on Afghan soil near the Iranian border.

► U.S.A. - CIA TO RECRUIT MORE SPIES/OVERSEAS STATIONS TO RE-OPEN - Interesting times are ahead with news that the CIA are to undertake the largest recruitment drive in its history. In a 'back to basics' move which will see the opening of former overseas stations the CIA have recognised that it has become far too dependent on so-called technical intelligence, or eavesdropping devices and spy satellites. Now, the agency wants to get back to espionage basics, by increasing its ability to place a spy behind enemy lines or inside a rival government.

After the demise of the Soviet Union, congress and the White House reduced the CIA's budget sharply. Spy scandals and public accusations of spying by France, Germany and other nations, and agency officials now believe that part of the problem is that agents have failed to emphasise the basics of the espionage craft. The actual number of new spies and new stations are classified, and officials declined to comment on the precise figures. But other officials have said recently that there are well under 1,000 case officers working in the directorate.

At the top of the list of requirements is computer expertise. The proliferation of global computer data networks, for example, has made it more difficult for the agency to slip into a country using false identification. Only computer experts can defeat those local computer systems, and even developing countries routinely make sophisticated computer checks on passports and visas. The CIA's decision to reopen some of its closed overseas stations is also driven by the new complexities of post-cold-war espionage. Many of the stations in the developing world were closed



because the cold war's end made unnecessary their chief mission to recruit and spy on Soviet diplomats and KGB officers serving in the same countries. But now, officials say they realise that those remote stations will be important in the CIA's efforts to spy on terrorists and other international criminals who have sought haven in those countries.

► BRITAIN - WOMEN TAKE THE LEAD AT MI5 - MI5 now has more female agents than males and the trend is set to continue with the security service recruiting more women than men every year. Former MI5 director-general Stella Rimington, the first woman to hold the post, says the development puts us ahead of the Americans. 'Things have improved tremendously,' she added. It was also revealed that sixteen thousand hopefuls answered MI5's ground-breaking newspaper adverts for recruits in May 1997, but fewer than 20 were chosen. A source revealed that the new staff are 'a fair spread' of men and women, but avoided talking about their previous jobs or their ethnic make-up. 'You don't need to be able to jump off moving trains or drive speedboats to be an MI5 officer,' he added. In a separate move, a plea by MI5 for its agents to be given the power of arrest was rejected by the Government.

Details of MI5 recruitment can be found on the official web site at - <http://www.mi5.gov.uk/> -  
The address for enquiries is : The Enquiries Desk, P.O. Box 3255, London SW1P 1AE

► BRITAIN - MENWITH HILL 'CHARGED WITH COMMERCIAL ESPIONAGE' - The Menwith Hill station in North Yorkshire, known within the NSA as Field Station F83, is the agency's largest listening post in the world. The 562 - acre facility has grown significantly since it opened in 1966. Since 1960, its staff has increased from 400 to 1,700, including more than 1,400 US engineers, physicists, mathematicians, linguists and computer scientists. The number of radomes on the site has increased from four to 25, with three more currently under construction. This ongoing expansion has led to several parliamentarians in Germany, Italy and France to demand an explanation of the site's activities.

In the absence of a unilateral threat after the fall of the Soviet Union, it is thought Menwith Hill is used to gather information on international terrorism and drug trafficking. Some European companies, however, suspect that the site might also be used for economic espionage. Volkswagen, Thomson-CSF and Airbus industries have all made claims that they have lost contracts because of communications that were intercepted by the USA. Under a joint US-UK agreement from the 1940s, the NSA is free to operate in the UK provided the agency shares its signals intelligence with the UK.

In another development a judge has lambasted British Telecommunications (BT) for revealing detailed information about top secret high capacity cables feeding phone and other messages to and from Menwith Hill base. BT admitted that they had connected three digital optic fibre cables - capable of carrying more than 100,000 telephone calls at once. In a courtroom fiasco BT's solicitors first sent documents and a witness to give details of the cables to York Crown Court, where two women campaigners were appealing against conviction for trespassing at the station. The next day, they sent a second solicitor to attempt to silence their own witness and to withdraw evidence already given. Judge Jonathan Crabtree agreed to grant public interest immunity "BT had no business whatsoever to disclose anything of this kind", he said. He then ordered Mr R.G. Morris, BT's head of emergency planning not to give any more evidence about the secret cable. According to the evidence provided by BT and now in the public domain, BT first provided two high capacity "wide bandwidth" circuits to Menwith Hill in 1975. They were connected on a coaxial cable to the BT network at Hunters Stones, a microwave station near the base. The station which one of two "hubs" of the BT "backbone network" (the other serves the National Govt. bunker "city" at Corsham ed.) of microwave links carries telephone calls via Hunters Stones and a number of other strategically located microwave stations across Britain and according to the report also carries the calls directly to the United States via undersea cable. Even as BT's solicitor was seeking to have his evidence prohibited, BT's witness was outside court giving further information to the women's solicitor implying that other British communications companies were also involved in the spying activities at Menwith Hill. BT were ordered to pay the legal costs caused by their change of heart. The judge accused them of giving away confidential information and national secrets.

► E.C. - PARLIAMENT BACKS OFF THE 'ECHELON' QUESTION - Good at sorting out legislation



about the size and shape of cucumbers, the European Parliament had more trouble trying to digest 'ECHELON' (see report on ECHELON last issue and item above). Something of a media frenzy was building up at the prospect of open discussion by the E.C., but it all turned into a damp firework when the issue was swept aside. "The whole discussion was completely brushed over," Green Party member of European Parliament, Patricia McKenna, said. The alleged system has only recently come under the scrutiny of the European Parliament, which has grown concerned about EU government and private sector secrets falling into US hands. The debate fizzled mysteriously, said McKenna who suggested that the Parliament is reluctant to probe the matter fully for fear of jeopardizing relations between the EU and the United States. "Basically they didn't want to rock the boat" she said. Furthermore, she said the debate was held two days ahead of schedule, hindering preparations for the discussion by European Members of Parliament. The Green Party believes the resolution to defer its decision on ECHELON, pending further investigation, was influenced by pressure from the US government, which has tried to keep the system secret.

Glyn Ford, a member of the European Parliament for the British Labour Party does not share the Green Party's view. "There is not enough information on ECHELON, beyond its existence, to debate the matter fully" said Ford. According to Ford, the Omega Foundation, a British human rights organisation, compiled the first report on ECHELON for the E.U. Parliament. "It is very likely that Omega will be commissioned again," Ford said. "But this time I believe the EU will require direct input from the NSA." Simon Davies, the director of the privacy watchdog group Privacy International sees the debate as a major civil rights victory. "It's unheard of for a parliament to openly debate national security issues," said Davies. "This debate fires a warning shot across the bows of the NSA". - We will keep you posted.

Do any readers have information about a similar system operated by France. (A busy numbers station operator). There are reports of a (French) Echelon-style wiretapping system that operates from Dordogne, France, French-Guyana, and New Caledonia ?

► SUDAN-KHARTOUM GOVERNMENT EMPLOYS VAST NETWORK OF SPIES Dr Hassan-al-Turabi with law degrees from London, Sorbonne and Khartoum Universities speaks four languages and is the moving force behind a powerfully anti-Western/anti-Egyptian cartel in Sudan. Al-Turabi's goal, he has been quoted as saying, is to unify the billion or so Muslims in the world under one theocratic government, with himself as the supreme leader.

Turabi, who had offered his countrymen much hope to begin with, after he was released from seven years in prison by Nimeiri, has evolved into a force of darkness. He showed his hand early on when he was instrumental in having dozens of army officers executed after a failed coup in 1990. Today most of his enemies are in jail or have fled the country. The Khartoum government employs a vast army of spies and informers to stay in power. Western intelligence sources estimate that 10-30 terrorist camps operate in Sudan, most to the northwest of Khartoum.

Five of the 11 people indicated in the planned attacks on the Twin Tower and New York subways, tunnels and monuments, were Sudanese. The Iranian Pasderan are said to have been especially active in Sudan since the military agreement that was concluded between Iran and Sudan in 1991. When Iraq invaded Kuwait, Turabi's support for Baghdad was unequivocal. These days, many Iraqis tend to use Khartoum as a clearing house on their trips abroad. Some have been issued with Sudanese passports. Clearly, Khartoum has been one of the few allies that Saddam Hussein could depend on.

► ROMANIA-PARLIAMENT DEBATES 'COLD-WAR' FILES - Romania's parliament are debating whether to open the communist-era Securitate police files to public scrutiny, eight years after the overthrow of Nicolae Ceausescu. (Ceausescu and his wife Elena were executed on December 25 1989 having been found guilty of murder and embezzlement of government funds). "Any Romanian or foreigner who had Romanian citizenship after 1945, whether resident in Romania or not, has the right to see his own file drawn up by the former Securitate," reads the bill being debated. Romania is one of the few ex-communist countries outside the Soviet Union that has not opened its secret police files. Restrictions remain in place in Albania, Poland and Slovakia. The Securitate was dismantled after the overthrow of Ceausescu but there are widespread suspicions that the Romanian Intelligence Service (SRI) that replaced it is riddled with former Securitate agents still



► HUNGARY - INTERNAL INVESTIGATIONS! A series of recent events already dubbed the 'Hungarian Watergate' may act as a catalyst causing a serious reappraisal and reorganisation of Hungary's multiple intelligence and security service. The newly elected coalition government has found since taking office that its members have been illegally targeted by intelligence operatives working to gather information for the Reformed Communist government who lost power at the last elections. It has further been inferred that not only did the Reformed Communist Party use state funds to execute surveillance but even employed freelance, commercial investigators to do some of the work.

As it stands Hungary, given the size of the nation, has a disproportionately large, or at least over complicated intelligence community. The minister for national security, reports directly to the national security advisor of the prime minister. There are five intelligence bodies underneath the minister for national security, the Office for Information (IH), the Office of National Security (NBH), the Office of Military Security (KBH) and the Office for Technological Intelligence Support (OTI). The IH serves as an external intelligence agency, concerning itself with activities abroad. The NBH detects and responds to foreign intelligence gathering and subversion and operations inside Hungary. The KBH duplicates the functions of IH to a certain extent, with its focus being on gathering of intelligence of a military nature abroad and threat analysis. This is mirrored by the KHB, which likewise duplicates the functions of the NBH: it protects domestic assets against the activities of foreign intelligence services. A review of the activities of the private sector is also long overdue. Soon after the change of regime in 1990, several hundred "less than politically-correct" individuals left or were encouraged to leave the intelligence service serving the newly reborn Hungarian Republic. This in itself should have been a positive step, however, almost all of them moved into the private sector. The change was so seamless that the fear is that these former operatives have maintained their former ties and resources and are selling their services to the highest bidder. Whilst Hungary and its two Central European partners, Poland and the Czech Republic, cannot be derailed in their progression towards becoming full-fledged members of the NATO, experts are well-aware of the fact that Brussels has yet to be convinced that enough has been done within the three states with regards to creating morally respectable as well as efficient security and intelligence services.

► SLOVAKIA - STILL SPYING AND NOT STOPPING In a separate development, reports indicate that Slovakia has continued to move even further away from the West and any former dreams of security or even economic integration; it has become clear that Bratislava is now a westerly outpost of Russian influence. The Czech/Slovaks are certainly very active on the Numbers station scene.

► BRITAIN - SAILOR SOLD SECRETS A Royal Navy chief petty officer who sold a secret document to THE SUN (Newspaper) about an Iraqi plot to put anthrax in duty-free goods coming into Britain has been jailed for 12 months. The Old Bailey (Court) heard that Steven Hayden, 31, who admitted passing a document to the newspaper in breach of the 1989 Official Secrets Act, had been desperate for money.

► BRITAIN - 'BIG BROTHER AWARDS' The 1998 UK Big Brother Awards were held on the 50th anniversary of the writing of George Orwell's novel, Nineteen Eighty-Four. The pressure group Privacy International announced winners (judged to be the modern-day equivalents of Big Brother in the novel) as well as individuals who had fought to protect privacy, awarding them Winstons, the name of the book's hero. Hosting the awards, the activist comedian Mark Thomas said eight other countries were interested in holding similar ceremonies next year. Simon Davies, of Privacy International said the time was now right for the awards. "Surveillance has now become an inbuilt component of every piece of information technology on the planet, we've got a long way to go to turn the clock back".

And the winners, Corporation: The British firm Procurement Services International for selling surveillance equipment to Nigeria, Turkey and Indonesia. Local government: Newham Council in London for using its 140 street cameras with facial-recognition software to try and pick out criminals in crowds. National government: The Department of Trade & Industry (DTI) over its plans to give the Police access to third party encryption keys for electronic mail. Product: Software company Harlequin for its package which compares dialled telephone numbers in order to group



them into 'friendship -networks' (probably used by BT's glossy Friends and Family system) it avoids the legal requirements needed for tapping. Lifetime Award: Merwith Hill (congratulations). None of the winners were present to accept their awards.

Winstons were awarded to three individuals, cited for campaigning at Merwith Hill, documenting police surveillance and pursuing a privacy case against a landlord who had installed a two-way mirror in a 19-year old woman's flat.

► BRITAIN - MENWITH HILL 'LATEST' DEVELOPMENTS The BBC television programme Close-Up-North reported that the NSA at Merwith Hill have applied to erect two more radomes bringing the total to 29. (Planning permission is a pure formality - the local council have no influence over what is built at the base). However, what is to go into them is of more interest. Merwith Hill is (along side all its other duties) to become the nerve centre of the new Star Wars programme The Space Based Infra Red System (SBIRS). Many felt that the Star Wars programme had ended with the Cold War however Congress as recently granted a further \$5 billion to pursue a new strategy to resurrect America's desire to dominate space. According to the TV programme Merwith Hill will control the satellites.

► GERMANY/U.S.A. - C.I.A. WITHHOLD FORMER STASI FILES Bonn have requested the United States return details on thousands of West Germans who worked for the Stasi during the ColdWar. This is the second time the request as been made. Bonn claim the files are the property of Germany. How the files reached the U.S. is unclear but one report suggested that they were obtained by bribing a Soviet military intelligence officer who was in charge of transporting them to Moscow. Recent reports suggest that each of the thousands of index cards contain an agent's name, address, code names, pseudonyms used on passports, missions performed and even pay records. One reason given for the continued secrecy is the possible danger to the life of anyone suspected of providing the files to the CIA. and compromising of double agents. Former East-German intelligence officers are said to be bent on revenge. The death of a former high ranking Stasi officer in a car crash in Portugal was investigated by German intelligence as a possible murder linked to the collaboration with Western authorities. Another reason the CIA are not returning the files is that they are still useful for turning up Cold war spies. The arrest of Theresa Squillacote and Kurt Stand (see issue 14, page 42) were Stasi agents - this was identified from the files held by the CIA. Squillacote had a British passport in the name of Mary Miller.

On a related subject, Yuri Kobaladze, Foreign Intelligence Service spokesman commented on former East German files in an interview with Ekho Moskvoy Radio. He denied that any files held by Russia had been sold to the F.R. of Germany. "It is simply absurd to suggest that we would sell any information, let alone information about the holy of holies in intelligence, agents in the field. " Naturally, there was close cooperation and coordination between the intelligence services of the socialist countries and the intelligence service of the GDR. This certainly does not mean that we provided them with information about our agents and vice versa. We might have been able to deduce from information which reached us that our German partners clearly had a source somewhere. That does not mean, however, that they told us about it. In general, as you will understand, despite all the cooperation, intelligence services have things which they do not share with other intelligence services, even their close friends. After all, the English used to say there are friendly states but there are no friendly intelligence services. So, there are rules of the game which do not allow specific names of specific agents to be exchanged, even with partners, even with friends".

► RUSSIA/BALTIC STATES/ - IT'S ALL VERY CONFUSED Russia and Eastern states continue to accuse each other of increased levels of spying activity. Belarus describe hostile special services are reported to be extremely interested in Belarusian-Russian integration. Publicly, Russia is said to be keen to have "solid and constructive cooperation" with Belarusia. Meanwhile Baltic chiefs have met in Lithuania to discuss increased activity by Russian intelligence. Foreign spying agencies "want, above all, to know more about the Lithuanian civil service and personnel who have access to important information, in particular in the Defence Ministry and security service", head of the Lithuanian State Security Department said.



drawing up files and bugging buildings and houses. Unofficial data estimates that one in every four Romanians had some links to the Securitate, helping to collect information on every aspect of Romanians' lives.

► RUSSIA - 'FAPSI' TO READ ALL RUSSIAN E-MAILS - FAPSI, or the Federal Agency for Government Communications and Information, has tens of thousands of people in its service, and despite plans to reduce personnel 40% by the year 2001, FAPSI is set to triple its current budget to 11 billion rubles (\$1.8 billion) per year by 2001. (Further details on FAPSI in this issue - SOUD part 2). Not content with expanding their already considerable overseas operations, FAPSI and other Russian communications agencies have prepared a draft project that would force all Internet providers in Russia to install a snooping device connected to a high-speed data link to the FSB's Internet control room. The move would allow the agency unfettered real-time monitoring of every e-mail message and web page sent or received in Russia. The natural reaction for many Internet users would be to respond to this Orwellian surveillance technique by encrypting their e-mails with widely available software. But FAPSI issues all licenses for encryption technology in Russia.

According to recent press reports, Russia is more active than ever in Britain, even surpassing Cold War levels. Also within target is the former East Germany. Russia's intelligence services are currently engaging in unprecedented levels of espionage.

► IRAN - IRAN TO APOLOGISE TO 1979 EMBASSY HOSTAGE - A leader of the students who imprisoned 53 American diplomats in their embassy in Teheran in 1979 for more than a year has apologised in person to one of his captives in an attempt to break the ice between Iran and the United States. At Unesco headquarters in Paris, Abbas Abdi, then a chemistry student and member of the Left-wing Followers of the Imam's Line, met with Barry Rosen, then press attaché at the embassy.

The two last saw each other in January 1980, as the 444 days of the embassy occupation ended. The continuing affront to the Americans, coupled with a bungled attempt to rescue the hostages, had effectively wrecked Jimmy Carter's presidency, and the legacy of bitterness it left has yet to heal. The followers of the Imam's Line (the Imam was Ayatollah Khomeini, who toppled the Shah in 1979), occupied the embassy on Nov 4 of that year in protest, they said, at the embassy's role as centre of an intelligence network (The Kilowatt Network?) that had used its black arts to maintain the increasingly unpopular autocrat in power. To prove their point, the Followers later produced thousands of pages of secret embassy telegrams which detailed American efforts to undermine opposition to the Shah. Many of these pages had been shredded in the days before the embassy was seized: the students laboriously pieced them back together.

Now the American Embassy is a training school for revolutionary Guards, its crumbling perimeter wall daubed with crude slogans. Opposite it, the "Nest of Spies Bookshop" sells volume after volume of reprinted American documents.

Barry Rosen was press attaché and was fluent in Farsi he had spent time in Iran as a Peace Corps volunteer, and all this was equated by Iran as confirming his membership of the CIA. He was subjected to a show trial and sentenced to death. He lived in fear of execution for months. For the last 18 years, the hostage-taking has poisoned relations between Iran and America, who have never restored diplomatic relations. But things are slowly changing. The recent election of a reformist president, Mohammed Khatami, spoke of his desire for better relations with America. Opposition to a rapprochement remains strong in both countries and so far the only concrete steps have been the visit of an American wrestling team to Teheran and the sportsman-like way in which the two countries met in France in the first round of the World Cup.

► RUSSIA - SPY SATELLITES IN A (WRONG) SPIN! The Russian news agency initially reported that six non-military Kosmos satellites had been successfully launched from a Tsiklon-3 booster rocket which took off from Plesetsk, 300 miles from the Arctic circle. It later became apparent that the satellites were Strela-3 military communication devices which had gone into the wrong orbit and were unable to communicate correctly with Moscow. The satellites were to be used as "space mail-boxes" for spies abroad who send information via special laptop computers. When the satellite passes over Moscow the messages are down loaded into the main computer systems of the GRU



military intelligence organisation and, possibly, the former KGB. An unidentified military official said adjustments would have to be made before they would operate properly. "A satellite flying over the region where the transmitter is located receives and records the message and later sends it back to earth over Russian territory said the Kommersant Daily newspaper. "The relatively low orbits of such satellites allow them to receive signals not only from powerful transmitters of 'resident' centres abroad (official spies probably based at Russian embassies), but also from small transmitters of agents and sabotage groups". It said the Strela satellites were first introduced in 1991 and that a dozen had been launched every year.

Britain is believed to use similar technology for its MI6 agents, but such non-secret activities were only revealed after the failure of the Russian launch.

► U.S.A. - DOUBLE STANDARDS ON EAVESDROPPING The USA has issued its 1998 annual report on human rights practices around the world, however, the report's section on privacy violations is wide of the mark when it comes to some of the more flagrant electronic snooping activities around the world. For example (read what you want into this) the report states that privacy of telecommunications is respected by the UK, Canada, Australia and New Zealand, but, no mention is made of the sweeping eavesdropping taking place in these countries. (See last issue (15) references to ECHELON and references in this section concerning Merwith Hill).

Reporting on Italy, the State Department says, "searches and electronic monitoring may be carried out only under judicial warrant and in carefully defined circumstances." However, no mention is made of the American communications surveillance stations scattered throughout the country. One of these is the NSA operated microwave intercept station located in an Italian military zone near the northern Italian village of Sorico, north of Lake Como. This site not only intercepts northern Italian microwave communications but also those emanating from the Swiss telecommunications centre on the top of mount Generoso across the Italian border in Ticino.

The report credits Norway for prohibiting unlawful electronic surveillance. Ignored was the presence of a Norwegian eavesdropping station at Jessheim, northeast of Oslo, which monitors domestic Norwegian communications. Items of interest are passed to the NSA headquarters in the US.

Denmark and Sweden are also given a pass grade Memory loss does not allow for the mention of the listening stations Aflandhage outside Copenhagen and at Bromma Airport outside Stockholm that routinely intercept phone calls and pass them via a network that includes U.K., Germany, Norway and Iceland, to NSA headquarters at Fort Meade, Maryland, USA.

The State Department criticizes some countries like Bahrain for monitoring electronic mail activity, but fails to mention that the US, for the past several years, has domestically and internationally, advanced the cause of real-time access to encrypted and unencrypted communications. It could be argued, therefore, that nations monitoring the Internet are merely carrying out the wishes of American agencies like the NSA and FBI which has been advocating such activities.

In its rating of Israel, the State Department underestimates the degree of monitoring by that country. The report states, "authorities sometime interfere with mail and monitor telephone conversation." Not mentioned is Israel's sprawling telecommunications intercept facility, known as Unit 8200 and located in a heavily guarded military compound at Herzliya in the Northern outskirts of Tel Aviv.

The massive site operates a string of listening stations around Israel: Mount Miron and Mount Hermon in the Golan Heights; Nahariyah near the Lebanese border; Mitzpah Ramon in the Negev Desert; and Dahlak Island off Eritrea in the Red Sea. This network listens in on communications throughout Israel and neighbouring countries.

Rather than being a valuable resource work on communications privacy violations around the world, the State Department Human Rights report has steadily deteriorated into a biased report that rewards America's friends with excellent report cards while decrying those nations that have crossed its path.



► NORTH & SOUTH KOREA - "NUMBERS AND SPIES" According to a North Korean spy arrested in the South it was alleged that he received his instructions via shortwave radio since June 1984. According to the South Korean Agency for National Security Planning (NSP), he supplied military and political information on 80 occasions via letters and fax transmissions from major Seoul hotels to North Korea through relay points, including one in Beijing. During further questioning he claimed "The number of North Korean spies in the South is believed to reach almost several hundred, considering call letters and the contents of instructions being sent through shortwave radio every morning". A crew member of a North Korean freighter involved in a drugs raid by Japanese investigators is believed to be a member of an intelligence unit within the military or ruling communist party. Intelligence equipment and secret codes were found during the raid.

In a plot worthy of the best James Bond film (fact meets fiction) U.S. intelligence agencies have detected a huge secret underground complex in North Korea, which they believe will be used to revive its frozen nuclear weapons programme. US spy satellites photographed a site with thousands of workers going in and out of a mountainside 25 miles northeast of Yongbyon, where North Korea has its nuclear facilities. White House and Pentagon officials fear the building of the complex is part of North Korea's effort to renege on a 1994 agreement to abandon its nuclear weapons programme in exchange for Western aid. North Korean officials claim the US have not lived up to its end of the agreement. North Korea recently expelled a US citizen for allegedly spying for South Korea.

► RUSSIA/U.S.A. - "RUSSIA KEEPS POCKET-SIZE NUCLEAR BOMBS IN USA" Readers in the UK may have seen the television programme 'Equinox' entitled "Russian Roulette" which examined the post Cold War state of Russia's ailing nuclear weapons and control systems. One part of the programme dealt with the disappearance of a larger number of so-called 'briefcase bombs' - nuclear weapons developed for attacks on city centres and other strategic targets. Now a former colonel in the Russian intelligence service, Stanislav Lunev, has given evidence to a US Senate commission in Washington. He said that Russian intelligence is more active and dangerous in the USA now than even during the Cold War. Lunev said he knew that some nuclear operations had been prepared against the USA. So-called pocket size bombs, which can fit into a briefcase, had allegedly been hidden on US territory. Lunev also said that, when working for Russian intelligence, he took part in preparations which envisaged removing, if necessary, President Clinton and some top US military officials.

► RUSSIA - FFS STAFF AT MOSCOW HQ TO BE CUT BY 4,000 The crisis in Russia has struck the most elite Russian power structure. According to reliable sources in the Federal Security Service (FSS), its central apparatus will be reduced by 4,000 people. This news excited various Western secret services and journalists, the official wording for it is reorganisation. The proportion of reorganised professionals may vary from 20 to 70%. This is the first controversial action by the new FSS chief, Vladimir Putin. According to some reports FSS employees are currently getting only about half their actual salaries, and meal allowances have not been issued for six months. One report suggested that the "entire staff" had been on "indefinite leave" pending the outcome of the review. Another plan to put some staff members onto a freelance basis, and keep paying them and giving other privileges, has been set into further doubt following the latest financial crisis.

► BRITAIN - MI6 BANKS WITH ROYAL BANK OF SCOTLAND! The Royal Bank of Scotland is used by MI6 to fund agents abroad, according to a renegade officer. Richard Tomlinson, a former MI6 officer, said that the Royal Bank of Scotland was close to the secret service. He said it was involved in transferring money to many of MI6's undercover agents overseas. He made his claim as Germany's central bank began an inquiry into Tomlinson's allegation that one of its officials has been working for British intelligence. The Bundesbank spy, codenamed Orcada, is said to have provided MI6 and Treasury chiefs with details of Germany's proposed interest-rate movements and its negotiating position during the Maastricht treaty. He also named three British banks, including the Royal Bank, which he said had close contacts with MI6. He said they were interested in obtaining intelligence about Germany's economic plans.

He claimed that the German official has been on the MI6 payroll since 1986. Wolfgang Moerke, the



Bundesbank's chief spokesman, said "We take these allegations very seriously. But we will wait until the end of our investigations before we comment further." In a letter to the parliamentary committee, Tomlinson claimed MI6 had also targeted other allies, including France, Spain, Italy and Switzerland. He said MI6 had a special unit which tried to steal economic and military secrets from Britain's European partners. His letter also reveals details of an alleged MI6 proposal to assassinate President Slobodan Milosevic of Serbia.

► U.S.A. - FORMER CIA OPERATIVE JAILED FOR 5 YEARS A former CIA operative was sentenced to five years in prison for trying to extort \$1 million from the agency in exchange for his silence about government eavesdropping operations. Douglas Fred Groat, 51, pleaded guilty to the extortion charge. He was not considered a great threat to national security but was rather 'obsessed by a job dispute with the CIA'. The case against Groat had centred around his intention to disclose information which may hinder present or future intelligence gathering. A plea bargain was entered and Groat agreed to fully cooperate with investigations. A full trial in the case could have forced the disclosure of sensitive national security information. Groat had threatened to inform two foreign governments that the CIA had cracked their coded communications - Officials did not identify the two countries Groat had been accused of aiding.

► BRITAIN - MASSIVE OVERSPEND AT MI5 & MI6 HQ MI5 & MI6 busted the budgets for their new luxury headquarters - by up to £90 million in one case - a secret government auditor's report says. Much of the original work failed to meet security requirements and had to be re-fitted. But MI5 & MI6 insisted that the National Audit Office's report detailing the overspend should be kept secret. The Security Service, better known as MI5, moved to Thames House, the former ICI headquarters on Millbank, refurbished at an estimated cost of £285 million. The Secret Intelligence Service, or MI6, built its, Terry Farrell-designed, offices on the south side of the Thames next to Vauxhall Bridge. Douglas French, former Tory MP for Gloucester, first raised questions after being told by a "reliable" source that the 14 conifer trees on a ledge on the MI6 HQ cost an "unbelievable sum of money" - around £1,000 each. The Foreign Office told him the building cost £150 million, plus £90 million for "adaptions". These are believed to include replacing the original air-conditioning units to ensure they were bug-free and covering up a large verandah to block prying eyes. French said: "It was alterations to make the building suitable for the purpose for which it had been designed. That seemed to me to be monstrous". Sir John Boun, comptroller and auditor general, compiled the report after being asked to investigate by parliament's public accounts committee. The report's existence emerged unnoticed in a late-night Commons debate on the intelligence services in a speech by MP Robert Sheldon, chairman of the public accounts committee. French said: "I read the secret report and could see there had been an overspend".

Meanwhile an estimated £300 million is to be spent on a new HQ for the Government Communication Headquarters (GCHQ). The consortium awarded the contract said the new HQ would be housed in a single building the size of the Wembley Stadium Complex. GSL, a consortium comprising the security firm Group 4, Tarmac Construction and (what a surprise) British Telecommunications (BT), has been chosen to design, construct and manage the new building over the next 30 years. The 6,000 staff at GCHQ will have been pruned to 4,500 by the end of the decade, but is not expected to fall further after the move. The decision on whether to build the new HQ either at Benhall, one of the existing sites in Cheltenham, or at the Gloucester Business Park, about 5 miles southwest of the town centre, is expected shortly. The design (like a large doughnut) was based on a series of buildings arranged in a circular form around a large central landscaped courtyard (watch for the expensive conifers and the massive overspend). According to John Pilkington of GSL the four-storey HQ would help to promote the type of deep thinking required of the specialists at GCHQ (!). The building is due to open in 2003.

► U.S.A. - U.S. TO LIFT ASSASSINATION BAN! While Britain tries to dispose of the Libyan leader bombs fail to shift Washington's top bogeyman, Saddam. Now plans are afoot to ease the 1976 presidential order banning the assassination of prominent anti-American figures. Legislators are debating the lifting of Executive Order 12333. At present it is simply producing a policy of hypocrisy as various guises are used against Saddam, Gadhaffi, Castro and bin Laden.

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### E3) LINCOLNSHIRE POACHER - REVISED STATION SCHEDULE

All times UTC. All transmission use 3 parallel frequencies. 10.00 & 11.00 transmissions are discontinued.

	MON	TUE	WED	THU	FRI	SAT	SUN
12.00	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084
13.00	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084	14487/15682/16084
14.00	10426/12603/14487	16314/14487/12603	14487/15682/16084	14487/15682/16084	14487/15682/16084	10426/11545/14487	11545/14487/15682
15.00	11545/13375/15682	7755 /8464 / 10426	11545/14487/16084	11545/12603/13375	11545/12603/13375	11545/12603/13375	11545/12603/13375
16.00	11545/12603/13375	11545/13375/15682	6485/ 7755 /10426	8464 /12603/14487	11545/12603/13375	11545/12603/13375	8464/ 10426/11545
17.00	6959/ 8464 / 11545	11545/12603/13375	12603/14487/16475	5422 /6485 / 8464	11545/13375/16084	11545/12603/13375	11545/12603/13375
18.00	7337/ 9251/ 12603	5746/ 6959/ 9251	6959 /9251/ 11545	12603/14487/16475	5422/ 6485/ 8464	11545/13375/16084	7337/ 9251/12603
19.00	7337/ 9251/ 12603	6959/ 9251/ 11545	5746/ 6485/ 8464	6959/ 9251/11545	11545/13375/15682	5422/ 6485/ 8464	6959/ 9251/ 11545
20.00	6959/ 9251/ 11545	7337/ 9251/ 12603	6959/ 9251/ 11545	6959/ 9251/11545	6959/ 9251/ 11545	6900/ 10426/11545	6959/9251/ 11545
21.00	6959/ 9251/ 11545	7337/ 9251/ 12603	7337/ 9251/ 12603	5746/ 6959/ 9251	6959/ 9251/ 11545	6959/ 9251/ 11545	5746/ 6959/ 9251
22.00	6959/ 10426/ 11545	6959/ 9251 /12603	7337/9251/ 12603	7337/ 9251/ 12603	5746/6959/ 9251	5746/ 6959/ 9251	5422/ 6485/ 8464

#### WEEKLY SCHEDULES A to J

UTC	MON	TUE	WED	THU	FRI	SAT	SUN
12	F	F	F	F	F	F	F
13	I	I	I	I	I	I	I
14	B	C	D	E	F	G	A
15	A	B	C	D	E	F	H
16	H	A	B	C	D	E	G
17	G	H	A	B	C	D	F
18	F	G	H	A	B	C	E
19	E	I	A	I	A	B	I
20	I	F	I	H	I	A	D
21	D	E	F	G	H	I	C
22	C	D	E	F	G	H	B

#### TOTAL TRANSMISSIONS PER WEEK

E3) NOW TRANSMITS 77 x 45 MINUTE SLOTS PER WEEK. THESE MESSAGES ARE SENT OUT ON 9 SEPARATE MESSAGE HEADERS WHICH WE HAVE TITLED A TO I. FORTNIGHTLY MESSAGE PERIODS BEGIN ON THE 1st & 15th OF EACH MONTH.

#### FREQUENCIES USED ARE:

16475 16314 16084 15682 14487  
13375 12603 11545 10426  
9251 8464 7755 7337 6959  
6900 6485 5746 5422